The Builder.

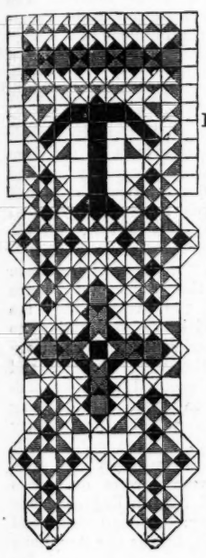
VOL. XLIV. No. 2106. SATURDAY, JUNE 16, 1883.

ILLUSTRATIONS.

Queen's School, Chester.—Mr. E. A. Ould, Architect 812
The New Alhambra Theatre, Leicester-square: the Foyer in the Second Tier (Double-page Engraving).—Messrs. Perry & Reed, Architects 814
Proposed Southern Hospital, Glasgow.—Design submitted by Mr. H. McLachlan, Architect 821
The New Alhambra Theatre, Leicester-square: showing Part of the Roof of Auditorium (Double-page Engraving) 816, 817

CONTENTS.

A Dublin Presentation of Doric Architecture 799
Sculpture and Fine Arts of Assyria in the Kouyunjik Gallery of the British Museum 800
Education or Stupefaction 801
The "Twelve French Artists" 802
Trials with Assessors 802
Our Gas Bill 803
The New Theatre at Fountain-court, Strand 803
Passages in an Unsuccessful Career: My First Commission 804
The New German Theatre at Prague 805
The Employment of Artistic Materials in the Architecture of Houses and Hospitals 805
Royal Institute of British Architects: Medals and Prizes 807
Architecture in India: Royal Institute of British Architects 808
Truro Cathedral 809
The Castle at Heidelberg 810
An Ancient Bridge 810
Queen's School, Chester 810
The New Alhambra Theatre 810
Design for Proposed Southern Hospital, Glasgow 810
The Domestic Architecture of India 823
Prevention of Fires in Theatres 824
Exhibitions 825
The Swiss National Exhibition at Zurich 825
Foreign Competitions 825
The Arlberg Tunnel 826
Amsterdam Exhibition 826
The Humboldt Monuments 827
From the United States 827
The Birmingham School Board and their Architects 827
The Proposed Town-Hall for Birkenhead: Duplicate Tenders 827
Addlestone Church 828
New Cemetery, Stoke, Surrey 828
Eton College 828
The Dowson Economic Gas at the New County Asylum, Gloucester 829
The Glasgow Institute of Architects and the Police Bill 829
Proposed Association of Inspectors of Nuisances 829
The London School Board and its Contracts 829
Sanitary Assurance Association 829
Society for the Encouragement of Fine Arts 830
Surveyors' Fees 830
Masters and Men 830
Building Patent Record 830
Artisans' Dwellings 830
Greek Church, London Wall 830
Timber Stages and the Building Act: Mr. Cobbett's Timber Stage, Drummond-street 830
Flues 831
Chimneys 831
Church-building News 831
Dissenting Church-building News 831
Novelty in the Tyres of Carriage-wheels 832
Books: Illustrated Handbooks of Practical Art: Art-work in Gold and Silver, and Art-work in Porcelain (Low & Co.) 832
Tewkesbury Abbey and the Abbey House 832
Miscellanea 832



A Dublin Presentation of Doric Architecture.

THE Rev. Mr. Mahaffy has recently delivered a series of lectures in Dublin on Greece and Greek art, and among them one on Doric architecture. A summary of this is in circulation among the public at large, and in consequence it becomes imperative that it should not pass without notice and correction. It abounds, indeed, from beginning to end with the most extraordinary errors; these may have crept in by the fault of the summarist, though to ascribe them to him out of tenderness to the lecturer, might be only to indulge courtesy in one direction at the cost of committing an injustice in another. But in any case the important business in hand is the indication of misconception and error rather than the conviction of authorship. The reverend lecturer, it is well known, has the enviable familiarity with ancient monuments which is to be gained by actual inspection of their remains during visits to Greece, and this cannot but enhance the authority which is justly his due as the writer of several works as popular as learned on the literature and social life of the ancients. There is the more reason that the weight of this authority should not be allowed to tell against accuracy in archæology and the history of art, any more than against the fairest fame of Homer or of Pindar.

What architect will not open the wide eyes of amazement as he reads that the builders of the Renaissance period were not aware that "the Doric pillar instead of being of the same diameter along its entire height tapered gradually and very slightly towards the summit"; that it was then "at one time imagined that the shaft swelled slightly about the middle," and that it did appear to do so by an optical illusion which was only detected and demonstrated to be nothing more, by the test of actual measurement. "It was reserved for the genius and industry of future ages (of the ages, that is, that have elapsed since the Renaissance), to find the explanation." "If a pillar, it is said, were formed of perfectly straight lines with the same dimensions along the entire height of the shaft, it would to the eye, by a curious optical effect, actually seem broader at the top. Hence to obviate this illusion the Doric architects tapered the shafts of their columns."

Allowing in charity that we ought to read here diameters for dimensions, it must be noticed that the profiles of the several drums that compose a Greek Doric column of the best period are perfectly straight lines; but again it is possible that by straight we are to understand vertical. We have then the enunciation that the Greeks reduced the diameters of their heavy columns from below upward, without any reference to the expression of stability, and in essaying to counteract an illusion that made them lose the appearance of being simple cylinders, managed matters so that to the unprejudiced eyes of the men of the Renaissance, they appeared to bulge in the middle. This certainly is a remarkable account of the entasis, and of its origin and *rationale*. No less confused is the account of the splendid service which Mr. Penrose contributed to art and archæology by the labours which produced "The Principles of Athenian Architecture." "With true modesty, we read, Mr. Penrose disclaimed originality and affirmed that he had only rediscovered the facts which his book contained, pointing especially to a passage in Vitruvius in which the principle was obscurely hinted at; but unquestionably the credit was due to Mr. Penrose of having made the discovery that the lines on which the Grecian Temple was constructed were not straight, but curved." The fact is that the application of curvature, and indeed the motive of it with the ancient architects had been already distinctly recognised by others when Mr. Penrose undertook the task which he so ably executed, of verifying this refinement by scrupulously accurate and delicate measurements. In the pursuit of this purpose he not only confirmed and gave definition to previous observations, but discovered that the refinement had been carried much further, and applied much more extensively than had been noticed by modern observers or hinted at in ancient literature. If there was any modesty true or false in the matter it must have been in not giving obtrusive expression to the self-complacency which one who cannot but know the value of his own good work, is bound to feel;—save us all from complacency as a compliment to our modesty in disclaiming merits that we happen not to be entitled to lay claim to, whether others are aware of the fact or not!

There is much interest in the contrast which the lecturer adverts to between the fully decorated and luxuriant ornament of the pre-historic architecture of Greece, and the calm, severe, and sparingly ornamented Doric order. The pre-historic examples, we presume, would be the fragments of columns discovered at Mycenæ. But the contrast is insisted on too absolutely. We do not possess all the evidence we should desire of the treatment of the earlier Doric forms, yet enough is known of the colour decoration of a temple so late as that of Ægina to prove that colour was applied to both the architecture and the sculpture with a degree of lavishness that only admirable skill and taste could preserve from tawdriness. We willingly believe that such skill and taste were forthcoming, but the employment of these qualities would leave and would enhance the ornamental character of the general effect. The archaic architectural terra cottas discovered in the Olympian excavations, and alluded to by the lecturer, tell in the same direction. It is a mistake to suppose that the "learned men" who have identified an Egyptian influence in Doric architecture have connected it with this assumed revulsion from a decorative to an unornamental style. The Greek, who had seen Egyptian monuments, might well have derived from them a sense of the calmness and dignity that were within the scope of architectural expression; but he must also have come away impressed with the compatibility of severity with elaborate enrichment, if not with their natural mutual dependence. It is true that the historic style of architecture of the Greeks cannot be directly affiliated on the pre-historic by obviously direct evolution; so far as the pre-historic architecture is represented sufficiently, —which, however, is scarcely the case,—by the "Treasuries" of Mycenæ, we must certainly look elsewhere for the rudimentary Doric temple, its constructive and schematic elements. We must inevitably look in the first place as students of the subject, ancient and modern, always have looked to the suggestiveness of those forms which are common to all nations whatever in their early attempts to house themselves. When we look further for the selecting and deciding influences which finally mould a characteristic style, it is assuredly not to be admitted as "a difficulty that up to a date much later than the origin of the historic temples Egypt was closed to the Greeks." The origin of the type of Greek historic temples lies far back in pre-historic times; that is, in times when he must be a bold man indeed who would declare how much or how little the Greeks of a series of remote and unrecorded centuries may or may not have known of Egypt and Egyptian monuments. Egyptian influence may be identified even in the period of the "Treasuries," when Egypt may have been at least as open to men from Greece as to shepherds from Palestine. The recent excavation by Dr. Schliemann of the treasury at Orchomenos, brought to light a vast stone which had formed the flat ceiling of the inner chamber. This has been engraved in the "Journal of Hellenic Antiquities," and the intricate pattern with which it is covered, a combination of spirals with palmettes, is an unequivocal adaptation, or rather copy, of a pattern that recurs in Egypt on a variety of monuments, and bears its own proof that it is of Egyptian invention.

We have here a stray hint of a synchrony which parallels the allusion in a single speech of Achilles by Homer, to the inexhaustible

resources and wealth of Thebes in Egypt and of Orchomenos in Bœotia.

> "Not all the golden tides of wealth that crown
> The many-peopled Orchomenian town,
> Not all proud Thebes' unrivall'd walls contain
> The world's great empress on the Egyptian plain,
> That spreads her conquests o'er a thousand states,
> And pours her heroes through a hundred gates."

We seem bound to gather from the words ascribed to Professor Mahaffy that he believes himself to have originated the theory of the primitive hut. "The theory which he [Professor Mahaffy] propounded some years ago, and which was very much criticised at the time in Germany, was that the Greek temple had its origin in a wooden building." But the whole question had been thoroughly thrashed out in times which may be considered, it seems, relatively to periods, of which the lecturer takes account, as virtually prehistoric. That the Greeks built themselves wooden as well as stone houses, and wooden temples as well as, and certainly before, eelaborat and artistic stone temples, will be assumed by most people without argument; that the details of Doric temples of stone are far more direct intimations of precedents in wood than the irregular columns of a structure of no merit at Olympia, is equally clear to most; but when all these analogies have been pressed to the uttermost, we have still but the crude materials of a style, and it remains to look out for the possibility that the true breath of an artistic life was communicated from without. In this there is no implied imputation on the resources of Greek genius. The nature of genius is to respond to the stimulus of contact with genius. All the greatest movements in the arts have resulted from the confluence of distinct streams of energetic development, from the subjection of sensitive faculties to novel excitement. The Renaissance to which we owe the art of Raffaelle and his contemporaries was the product of such a confluence. The arts of the Middle Ages developed in response to the stimulant intercourse of East and West in the period of the Crusades. The students of philosophy know well how much progress was due to the confluence of Hellenic, Hebrew, and Egyptian literature at Alexandria. Greek legends preserve intimations of prehistoric reactions between Phœnicia and Northern Greece, Asia and Corinth, Egypt and Argos, and imperishable ceramic evidence bears out presumptions from direct comparison that the final, the truly artistic model of Doric architecture was decided by men to whom Egypt was well known.

SCULPTURE AND FINE ARTS OF ASSYRIA IN THE KOUYUNJIK GALLERY OF THE BRITISH MUSEUM.

Now that the whole of the collections of Natural History have been successfully removed from Bloomsbury to South Kensington, where they will be exhibited in a more instructive and attractive manner than hitherto, the future characteristics of the display at the British Museum will be of an archæological and literary nature. To this end, the extensive additions, now in course of erection on the site of the garden attached to the residence of the Principal Librarian, and the equally great area of floor and wall space for the present void of objects will be devoted, and it will not be long before the exhibition of manuscripts, prints, drawings, books, Greek sculpture, and ethnographical antiquities is substituted for that of Natural History. A large room devoted to the reception of the shattered fragments of the Mausoleum of Halicarnassus and other invaluable pieces of fine Greek art has been built, at a somewhat low level, partly on the spot formerly occupied by the Entomological Room. This is not yet opened to the public, but the arrangement of the contents by Mr. C. T. Newton, C.B., is in a forward state, and no doubt it will be accessible to visitors before long. In the meantime, while all these alterations and improvements are being carried out, the galleries and rooms containing exhibitions of especial classes at present undisturbed, amply suffice to interest the visitor and student, and a well-timed opportunity has been taken advantage of to issue a Guide to the Assyrian Antiquities in the Kouyunjik Gallery, under charge of Dr. Birch, F.S.A., keeper of the Egyptian and Oriental Antiquities, and president of the Society of Biblical Archæology. In point of critical importance, the objects which are deposited in this gallery transcend the Assyrian history recorded in the Old Testament itself, for while in the Biblical narratives we read the history of the nations of Assyria, Babylonia, Elam, and Chaldea,—written long after the events themselves took place,—in the presence of the relics recovered by Sir Austin Henry Layard from the mound of Kouyunjik opposite Mosoul, on the east bank of the Tigris, the supposed site of the ancient Nineveh, we are brought face to face for the first time with contemporary antiquities belonging to and illustrative of these identical facts. If to read the history of Nebuchadnezzar and Sennacherib, Hezekiah and Merodach-Baladan, translated from a Hebrew manuscript a thousand years old, be, as it unquestionably is, an essentially important and attractive duty, how much is the knowledge thus acquired enhanced when we know that in this gallery we stand in the presence of a large collection of objects contemporaneous with the very events described in those histories, and although contemporaneous, and therefore of a date of two thousand five hundred years, these relics are by no means so fragmentary and illegible as many would have been led to imagine on account of their far-reaching antiquity. Large slabs of gypsum, alabaster, and limestone, elaborately carved in a low-relief with spirited and intelligible tableaux, record historical events that happened during the reign of Sennacherib, B.C. 705 to 681, and of his grandson, Assurbanipal, B.C. 668 to 626, pictorially and faithfully (if not correct in drawing and perspective when judged by the canons of our Western art, at any rate graphically of great merit), and are, from the immense amount of detail they exhibit, worthy of the closest attention of the ethnographist and student of manners and customs. A country wanting, as Assyria seems to have been, in the means of producing papyrus and parchment, would have been without any means of preserving an account of its transactions, whether public or private, had not the happy idea suggested itself in very distant days to the inhabitants to employ slabs or cakes of carefully-prepared clay on which to impress with a sharp triangularly-pointed stylus the intricate and peculiarly glyptic characters into which their language very soon passed after a preliminary ideographic period still represented by a few very rare tablets. The enormous number of inscribed tablets (a number which would be even still greater had not those which were merely sun-dried relapsed, after becoming wetted, into the primary mud or clay of which they were formed), which, being kiln-baked, have been recovered, in a fresh and uninjured state, from the rubbish mounds that mark the sites of many a populous city on the Mesopotamian plains, will, no doubt, eventually be largely augmented by the more scientific exploration of enlightened countries that are now fully aware of the treasures lying buried there, and also by the accidental discoveries which occasionally attend the native digger, who is keenly alive to the fact that they possess a high market value, and who rarely lets pass an opportunity of grubbing about and turning over the surface of the mounds. The bronze antiquities demonstrate, if, indeed, demonstration were wanting to us after inspecting such marvels of art as the sculptured slabs, the high excellence to which the worker in this perennial metal had brought his work; and the lapidary and stone-engraver has carved upon little cylinders of precious stones innumerable myths and favourite religious devices, as rich in material, if we could only read them aright, for reconstructing the poetical legends of Assyrian and Babylonian polytheism as the subjects with which the Greek and Roman gem-cutter has endowed the engraved stones of classic times.

It is to Mr. (now Sir Henry) Layard that the authorities of the British Museum are principally indebted for the acquisition of the sculptures of Kouyunjik, in 1849 and 1850, from a site believed to be within the limits of the ancient Nineveh. Other objects have been found in various parts of Assyria from time to time, and their addition to and incorporation with the Kouyunjik remains has resulted in the collection in its present state. The illustrious discoverer published illustrations of many of his discoveries in his "Monuments of Nineveh," and other works, and of late years the "Transactions of the Society of Biblical Archæology" have contained occasional notices of important objects in the collection. The sculptured slabs of Kouyunjik are taken from the palaces of Sennacherib, B.C. 705, and represent the construction of his palace; other slabs represent battle-scenes which occurred during the rule of Assurbanipal or Assurbaniapli, who flourished about B.C. 665. Apart from the most important features which these slabs exhibit, namely, the contemporaneous confirmation of events recorded after a long lapse of years in the historical books of the Old Testament, let us glance at the interesting points connected with architecture and artistic work which these sculptured slabs afford. The most important slabs owe their origin to a desire to embellish the palace-walls with representations of incidents in the invasion of Elam by Assurbanipal. Urtaki, king of that country, disregarding benefits conferred upon his people by the Assyrians during a famine, invaded Babylonia, but fled at the approach of an Assyrian army. Pursued and defeated, in his mortification he commits suicide, and, later on, another Urtaki calls upon an Assyrian to cut off his head and carry it as a good omen to the king; the slab on which this incident is vividly carved is of great interest. The unfortunate king Urtaki is succeeded by Teumman, a man who was "the likeness of a devil," as the contemporary biographer has recorded probably with a pardonable bias. This prince endeavoured in the usual Oriental spirit to destroy the family of Urtaki, who, however, fled to Assurbanipal, and were sheltered from their enemy after repeated endeavours to get them into his hands. Assurbanipal's policy resulted in a conflict with Teumman, near the city of Shushan; Teumman was defeated, his head cut off and carried away in a chariot, over the figure of which in the carved slab is an inscription setting out that it is "the head of Teumman which was cut off in the midst of the fierce battle in the sight of the army; they are hastening away gladly with the good tidings to Assyria." From this series of carvings we are able to observe that the royal palaces and temples were generally erected upon an artificial mound in order to raise the building clear of the floods to which the country was occasionally exposed. These edifices not unfrequently covered a large superficial area. They were furnished with towers or turrets crenellated or embattled like an English castle of the thirteenth century. Arched doors and entrances are represented, but as the Assyrians were rather timid in the use of the arch for vaulting, their rooms were in plan very long and rather narrow. Steps and inclined planes were in use. Of the former, a remarkable doorstep of solid bronze, of great thickness, and cast in a mould with a raised pattern is preserved in the British Museum, inscribed with the name of Nebuchadnezzar, king of Babylon; in illustration of the latter, there is built into the northern end of the gallery the slab series from a descending and from an ascending ramp or inclined plane of Sennacherib's palace. Although no traces of upper floors have been yet found among the ruins of Nineveh or other sites, it seems likely that they existed. The walls of the rooms on the ground-floor were, in the cases of which we have remains, covered with sculptures in low relief, and very often the bricks were covered with properly-coloured representations of incidents of war and the chase. The Babylonian architects appear to have used brick rather than stone in the building of their palaces. These were often enamelled and highly coloured, fragments of inscriptions enamelled in white upon a blue ground have been found. Of mechanical appliances the knowledge was, as might be expected, very rudimentary, but the rope, bucket, and basket, the sledge upon rollers, the lever or pinch-bar, bevelled at one edge, and used with stones as a fulcrum to augment its power, and the construction of artificial mounds or inclines may be observed on some of the slabs in this gallery. For the rest, sheer manual labour was employed, forced gangs of labourers, presided over by an official armed with a truncheon, hauled at long ropes and transported heavy weights in a manner shown not only here but in Egyptian art, and the task-master, with a formidable cudgel, rains down unceasing blows upon the unhappy workmen, probably prisoners of war, or natives subject to enforced work by reason of their class position in the State, who are thus stimulated to put out their whole strength on their exacted work. Of the pulley nothing seems to be represented, but the balancing-weight is frequently employed chiefly in connexion with the raising of water by means of the shadoof or balanced lever, a

method employed to this day in Egypt and other countries in primitive methods of irrigation.

Of the tools with which the Assyrian artificer worked, under the direction of his architect, not much remains, but the table cases contain several bronze and iron objects which were undoubtedly employed in the constructive arts,—such as iron nails, bronze piping, long bronze nails from Kouyunjik, measuring 10¼ in. in length; nails, and heads or studs of nails, in bronze, from Nimroud and Kouyunjik; bronze nails with the points bent over and twisted, conjectured by the writer of the Guide to be an ornamental style of clinching; fragments of bronze rods and wire ornaments; the pivot of a door or gate still showing part of the iron rails by which it was fastened; long instruments of bronze, supposed to be chisels, from Tel-Sifr; a ring of bronze with the clamp for fixing it into a wall, evidently to receive the upper pivot of a gate; axe-heads, hatches, adzes, knives, staples, rods, and pins of bronze. This category of builders' implements and fittings probably exhausts all the classes that we are likely to recover from Assyrian diggings.

The Assyrian city, as depicted in the slabs, appears to consist of towers with curtain wall between them, crenellated, and having in the centre a pair of folding doors with rounded top (pp. 114, 115). The houses, although not so elaborately drawn, were evidently constructed after the same principle. Among other objects of interest may be observed the representation of a bireme or galley with two banks of oars, with very high bulwarks, a kind of cabin with large open ports, and conical pointed ram (p. 49); the details of the caparisons of a war-horse ridden by a warrior, attacked by a soldier, attired in chain-armour, and armed with shield, having a central boss; the curious chariots, with ornamental poles and crenellated wheels, some having a square body, raised to a point behind and rounded in front; the raft (p. 103), constructed of four tree-trunks tied together, having a pot and inflated skin upon it; and the ox-cart, with wheel of four spokes, drawn by humped oxen. Abundant details of costume, armour, and domestic objects are presented in the carved slabs, and the artist has taken care to represent a variety of fishes, eels, and crabs in the wavy lines of his seas, marshes, and rivers, and trees of many species, such as fig-trees, poplars, and oaks, upon the hills and plains upon which he locates the battle-scenes and other incidents which he has been commissioned to reproduce. The rows of curling hair, the tunic and trowsers, belts, collars, bows, quivers and arrows, the fringed and embroidered dresses, the women's diadems and bracelets, the elaborate harness of the horses, the pointed helmets with cheek-plates, even the ornamental patterns on the dresses are not without great interest, for by an examination of these and similar subjects we may, as it were, reconstruct, in a great measure, the life and times of ancient Assyria, their fine arts, and their culture. The torture of captives and emissaries, and various modes of punishment and death, many of revolting cruelty, are here depicted in all their stern reality; while some of the episodes, such as the entreaty of Urtaki to be beheaded; the vainly-asked supplication of submissive captives for quarter at the hands of an elated and relentless enemy; the little children fleeing with their parents before the advance of a victorious invader, and the women or eunuchs seeking to escape in fragile rafts, are pathetic in the extreme. Among the relics of the gem-engravers' art there are many very fine specimens in the table-cases placed in the Kouyunjik Gallery. The small cylinders and cylindroid beads formed of hard stone are probably, we are told, the earliest objects that have come down to our day, some belonging to a period of about fifteen centuries before the Christian era. With these an impression was rolled upon the front or the edge of documents relating to sales and exchanges. The cylinder was worn on its owner's wrist attached to a cord or thread to secure it from loss. Various kinds of stone were in use. In early times there appears to have been a predilection for green jasper, crystal, amethyst, ironstone or hæmatite, grey and blue chalcedony, and carnelian. Of these the first named was most in use for the mystical figure of Gistubar or Nimrod, the originator and divine protector of the Assyrian nation, and of Heabani, an equally potent divinity, whose conventional attitude is that of slaying lions and bulls. Crystal, amethyst, and transparent stones of other kinds, as well as the more metallic kind of ironstone, were more generally in use for the name of the owner of the seal with a figure of the god whom he particularly venerated, and under whose protection he was placed,—much in the same manner, in fact, as a Mediæval saint exercised a tutelary care over those dedicated to his charge. Seals of this nature, we are told, could be easily engraved, and were probably kept in stock by the engravers who added the name of the purchaser. The use of hæmatite, which is, by the way, a favourite vehicle for the Egyptian scarab or amulet, is found among Assyrian seals with representations apparently to be referred to the legend of the encounter between the gods and the water-chaos, a female deity to whose legend we owe the remarkable discovery by the late eminent Assyriologist, Mr. George Smith, of the Creation and Deluge Tablets;—historical records which produced a very remarkable impression upon the public mind when they were announced a few years ago. The workmanship of the earlier period is rough, but by degrees the engraver acquired more command over the drill with which the work appears to have been executed: still, in some of the best early style the art is of a very delicate nature. The figures on them are thin, but well proportioned, and the inscriptions very carefully engraved. One of the most interesting of this class of Assyrian art relics is the seal of Darius, a jasper cylinder, 1⅜ in. long, ⅝ in. diameter, inscribed in three languages, Persian, Median, and Assyrian, with the words:—"I am Darius, the great king." The monarch is in a two-horsed chariot, driven by a charioteer, shooting with a bow and arrows at a lion, which is reared upright in front of him. Beneath the horses a second lion lies dead. Of the transcendant importance of the inscribed tablets, speaking philologically and historically, it would be difficult to say too much, but we have endeavoured in this notice to confine ourselves to the artistic points worthy of notice in the ancient objects displayed by the British Museum authorities in the Kouyunjik Gallery. The photographs with which the guide is illustrated assist the reader and student who cannot make a personal inspection of the gallery to acquire a more vivid idea of the antiquities which it contains, than he could do by text reading alone. Guides of this character, combining detailed description in a small compass, will do much to enhance the popularity of our national Museum.

EDUCATION OR STUPEFACTION.

WE sometimes wonder whether the persons who are now impressing on the education of this country some very questionable features, have ever put distinctly to themselves the question of what is the true end and object of education in general. Without going more profoundly into the philosophy of the subject, at the present moment, than to refer to the masterly statement, by Comte, of the nature of the true educational problem, we shall, we trust, carry the assent of our readers with us in saying that the proper aim to be proposed in the education of any individual is to aid and prepare him to fit himself for the best mode of discharging the duties which naturally lie before him, having regard to his position in life, and to the course which will be most in accordance with his birth and surroundings. It is true that there is an opposite view, which regards every child as an indistinguishable unit, as like any other child of his or her age as one atom of carbon or hydrogen is like to another atom. On this view, the unorganised aggregate of little human beings is to be poured into the common receiver of a school, where all are to receive the same treatment, by means of which each will arrive, at the same moment, at the same degree of excellence! One fatal objection to this theory is that no such result follows, and that however hard and unsparing be the drill, individual characteristics survive it. The idle will be idle, the industrious industrious, the clever clever, and the stupid stupid, so long as a hard-and-fast system is adopted which only tends to cover all with the same coat of varnish.

Not only is this the case, but there are certain proportions above, on the level of, and under the average of, childish ability, which are well known to those familiar with teaching. It is the experience, we are told, of the Oxford and Cambridge Public Schools' Board examiners, that "fifty per cent. of the well-fed, well-clothed public school boys are dunces, and are treated accordingly. This proportion, very likely, is excessive, but it is set down by the gentleman who made the estimate as the result of bad,—that is to say, inappropriate,—teaching. But, at the highest, the experience points out that not more than 80 per cent. of a given set of boys can be expected to pass an examination creditably.

On the contrary, with reference to a set of schools in which 600 children of the working class are taught, a manager and correspondent comes forward to say "the infants' department, year after year, has passed 100 per cent.; the boys' department, 97 per cent.; the girls', about 85 per cent. Excellent! says the enthusiastic novice. Is it so? How is the result attained? Only in one of two ways, viz., by making the examination a mere sham, or by subjecting the children to an injurious and crushing drill. Which of the two is the explanation in the case cited may be inferred from the statement that the master keeps the lads at work for 7¼ hours per day all round, and sends them home with a slateful of lessons to be prepared before the following morning.

Now that this state of things, which is a very natural result of the competition which the present system fosters between masters and teachers, is one involving danger and mischief, no one practically familiar,—we will not say with education,—but with the rudiments of physiology, can doubt. Apart from the grave question of the quality of the teaching, that is to say, its appropriateness to the probable future of the scholars, the question of the quantity has to be considered. To expect the children of the labouring classes to give an amount of time to imposed tasks which is quite enough for a University student to devote to steady work is,—we hardly like to use the proper word.

A clergyman writing on the subject to one of the daily papers is less reserved. "One boy," he says, "became delirious in the school, one or two died from brain fever. No one moves. The children are being injured for life, and killed outright." Now this may be an excessive case. But it is neither an impossible nor an unlikely outcome of the present system of grants to schools.

We have long been painfully conscious of the evil results, in the higher walks of society and of education, of the system of cram. We are not speaking with the experience of disappointment or of failure. Quite the reverse. But we have witnessed the winning of honours in examinations, as to which we can only say, *C'est magnifique, mais ce n'est pas l'éducation.* To a public institution, which we will not further particularise than by saying that it gives, in our opinion, the best education that is given in England,—an education which is marked by the development of the physique and activity of the pupils, as well as by their intellectual progress,—it befel us once to pay a visit on a Sunday, at the close of an examination. The scene was almost like a hospital after a battle. Worn out, not only with the length and severity of an examination extending over successive days, but with the nightly toil for preparing for each succeeding day, the youths lay on chairs or in corners of the rooms, overwhelmed by fatigue. And in this case they were lads of from sixteen to twenty; and the education, however severe the crisis of the examination, was thoroughly sound,—good,—and carefully suited for the special career to which the students were destined. How is it with the mere pass competitions? In these, cram appears in its worst form. It not only tends exclusively to the mechanical acquisition of certain points, we might almost say dodges,—which the experience of the examiner teaches him will pay,—but, on the one hand, it injures the natural robustness of the power of learning, and, on the other hand, gives the student a profound, and very likely a life-long, disgust for any subject on which he has had to pass examination.

As to these things in the higher walks of education, we can speak from personal experience, as acquired in the case of men who are now serving their country not without distinction in the Army and in the Church. In the race for life some degree of pressure and of hardship is unavoidable. And when a high standard of culture is requisite, and, above all, when it is attained, we may, perhaps, take the rough and the smooth together. But in all these cases there is at least an aim at the appropriate. Is that so with the Board schools, of which the writers that we have cited complain? We fail

to see it. For that education which should be of real use in after-life to the majority of those who have to serve their country by their daily toil, we do not see how this kind of examination is possible. Any technical education must be tested in its results by the practical technical ability of the student,—not by his reply to a string of questions. That this great object of cultivating those powers which are to be called into daily exercise in after-life, and in giving them the bent that will be of most service to the owners, is in any way set forth as an aim by the great body of teachers,—we fear is far from being the case. And the question will force itself to the surface. Is much of the education which we have made compulsory now doing most harm or most good?

In those inquiries as to the educational condition of other countries which immediately preceded our own legislation on the subject, two European States were distinguished by the greatest amount of the grossest ignorance. These were, first, the Papal States, in which education was simply non-existent; and, secondly, Austria, which was called the *pays à l'examen*, the country of competitive examination; and, according to the reporter, — if memory serves aright, it was Mr. Matthew Arnold,—the results of the two systems were not very widely different. In our anxiety to avoid the one we have, perhaps, stepped into the other. The ill effect on the physique of the children is, in many cases, undeniable. Not only so; the ill effect on them as fitted to become useful members of society is, we fear, not too often manifest. What are all these children to become? Does it fit a lad to be a groom, gardener, farm labourer, carpenter, blacksmith, mason, or bricklayer, to give him an education that will fit him for nothing but a retail tradesman or a merchant's desk? We think not. And yet for which of these careers, —if for any,—is a certain standard of education the preparation? Unless the general scheme of education not only recognises the fact of the wide difference in ability between child and child, but further provides for the requirements of the different walks of life with a degree of well-considered elasticity, we are doing our best to turn English children into, —not men and women, but—useless automata. We do not, of course, say that such is always the case; but we are not alone in thinking that there is a great and, moreover, an increasing danger that it should become so.

Shortly after these lines were written, a physician of large and special experience introduced the subject in conversation in the presence of the writer. He gave his opinion, based on physiological grounds, for the belief that the stamina of the working classes was being rapidly deteriorated by the severity of the Board School education. He was, he said, continually applied to by the country people in his neighbourhood as to their children, and he spoke without hesitation as to the mischief being inflicted on them. As to the utility of the sort of instruction thus forced into the immature and unprepared brain, there may possibly be two opinions, although the weight of medical testimony is against any permanent intellectual gain being thus effected. But as to the irreparable deterioration of the physique, and the falling off in the quantity of labour now obtainable in country places, there is, from our friend's point of view, no doubt whatever.

THE "TWELVE FRENCH ARTISTS."

REPRESENTATIVE works of certain French artists have been sent over for exhibition at the Dudley Gallery. We know not whether the precise number of twelve was selected by way of intimating that these are the apostles of the new aspirations of French art, come over to preach to the spirits in prison in Philistine-land, or whether the number is a mere accident of selection. Either way, the intention seems to be to suggest that there are artists of importance in France who are not sufficiently known here, and that they have something of a new nature to suggest to us.

We are not much disposed to quarrel with either position; at all events, not with the first one, except in the case of one or two of the artists represented. To make an end of the disagreeable side of it at once, we may say that almost all the works exhibited under the name of M. Ary Renan appear to us to be simply detestable, nor can we conceive under what possible conditions of public opinion or art criticism such work can have attained so much repute as to be sent over for special exhibition in this manner. We should not give much more favourable opinion of the large work by M. H. Lerolle, "A Misty Morning" (54),* a very large painting of labourers at work in the fields, which looks somewhat like what Jules Breton might paint if he unfortunately went mad. It is, in fact, a huge unfinished sketch, as coarse and crude in colour and execution as it can be, though on a small scale it would be recognised as a good composition. This specimen just illustrates the manner in which some of the French painters of the day are aiming at notoriety (rather than fame), by exhibiting works which are merely sketches seen through a magnifying-glass. M. Lerolle's smaller works, —landscapes,—have a good deal of beauty, especially "Evening" (57), where there is a deep twilight effect very beautifully rendered; and "Waiting," another evening scene on a river, with a single figure seated in a punt in the foreground, is also very poetic in effect.

The most forcible painter of the set is M. Roll, whose two life-size pictures of French workmen, half-lengths, are certainly remarkable in their way, though by no means very attractive in an ordinary sense. They represent respectively "an old French workman" (bricklayer's labourer, apparently), and "an old quarryman"; the latter has a fine type of face, the former is one of the most ugly, gnarled specimens of mankind which it is possible to see, and yet there is an interest in it, for it is a type of a large class of humanity, painted with great force and insight. The remarkable point about these pictures, and what separates French art of this class from most of the English work which is at all parallel to it, is that in purely realistic representation of this type there will be found to be, with a French painter, a *je ne sais quoi* which redeems it from being commonplace or vulgar. It is almost impossible to say in what this quality consists, but it is impossible not to feel it. There is more intensity of characterisation about it than an English painter would put into such a subject. A French painter, in treating a realistic subject, may be somewhat coarse, but he is never tame. In the sketchy picture of a horse, called "The Meal," by the same artist, there is a very clever depiction of equine attitude and character, and admirable drawing. M. Roll, who seems to fly at every subject, certainly oversteps the line in the sea-piece entitled "Rough Weather": as we described another work as "Jules Breton run mad," so we might best describe this as "H. Moore run mad." Other landscapes and coast scenes in the room, principally by M. Damoye, have great merit, especially the "View of Étaples," painted in the broad and full style which belongs to the modern French landscape school, but escaping the mere "smeariness" into which some of them have been betrayed by carrying too far the desire for "breadth." M. Besnard appears to be a painter in search of a style, as he exhibits two or three. His portrait of Major-General Rodes Green is painted, as far as the face is concerned, in what seems an exaggeration of Mr. Millais's most loaded style of handling; "At Church," on the other hand, is a large painting with two life-size figures rather flat in style, and with the background very little made out, but there is fine contrast of character between the young and old woman. "The Birth," by the same painter, is a very clever representation of a scene which an English artist would hardly venture to paint. Mdme. Cazin, whose landscapes are well known in London, does not appear to the same advantage as a figure-painter; landscape is her real gift.

There are some powerful bits of sculpture, especially a life-size nude "St. John Baptist," a plaster figure, by M. Rodin, very forcible and expressive in attitude. A small marble bust by the same sculptor, "Alsace's Orphan," is interesting as an attempt, apparently, to give to treatment in marble the same kind of broad, sketchy, soft effect, which many of the French painters endeavour to give to the treatment of the figure in painting; it is like the style of some of the works of Lefebvre and his followers translated into marble. In spite of some crudeness and eccentricity, the small collection is worth a visit for the originality of a good deal of the work in it, and the glimpse it gives of the tendencies of a clever but rebellious group of French artists.

* We suspect this and No. 56 should change numbers: but the catalogue generally is made out in that vague accidental way which seems peculiar to French exhibition catalogues.

TRIALS WITH ASSESSORS.

ONE of the provisions of the new legal procedure which was introduced by the Judicature Acts of 1873 and 1875, and which was most hopefully welcomed, was that by which judges were enabled to call in the aid of skilled assessors. The words of the Act of 1873 were:—"The High Court or the Court of Appeal may also in any cause or matter as aforesaid, in which it may think it expedient so to do, call in the aid of one or more assessors specially qualified to try and hear such cause or matter wholly or partially with the assistance of such assessors. The remuneration, if any, to be paid to such assessors shall be determined by the Court." It is enough to say that this provision has certainly been a dead letter. Sittings after sittings go by, and one legal holiday succeeds another, but no Court is assisted by skilled assessors. In fact, we can recall but one case in which the judge has been assisted by persons skilled in a particular business, where he has been engaged in trying a case involving very technical questions. To a large extent the deathblow was given to this part of the new enactment soon after it came into operation by the case of Sugg *v.* Silber, an action for the infringement of a gas patent, which it was decided that there was no compulsory power in the Court to compel the parties to have the action tried by a judge and assessors if one of them preferred another mode of trial. But it is worthy of note that the late Lord Chief Justice Cockburn distinctly expressed an opinion that it would be well if the Court possessed this compulsory power, and he expressed his regret that the new Acts and rules did not give it. There can, we think, be little difference of opinion on the point; for there can be no question that a jury is not well fitted to deal with technical questions relating to such matters as patents, light and air disputes, and litigation as to the construction of buildings. Nor, again, is it less obvious that a judge, if assisted by skilled assessors in such cases, must give a decision after a much less protracted trial, and consequently at less expense to the suitors as well as one which must carry with it greater weight; and that this was the intention and opinion of the Legislature when the Act of 1873 was passed we can have no doubt.

Perhaps no more telling example of the satisfactory character of a tribunal, which consists of a judge who is assisted by skilled advisers, can be found than the trials in the Admiralty Court. Here, in cases of collisions and salvage, the Court is almost always assisted by two of the Elder Brethren of the Trinity House. Nominally they have merely to advise the judge when he requires them to do so; but practically their opinions on the case as a whole cannot fail to have a considerable effect on the views of the judge. There are, therefore, three points in favour of skilled assessors being employed in certain cases; it is a practice which has for years been most successfully employed not only in the Admiralty Court, but in the County Courts which have Admiralty jurisdiction. It works very well in the Wreck Commissioners' Court not only in the case of inquiries into casualties caused by collisions, but into those which may have occurred through some technical point connected with ship-building or with marine engineering. It was clearly the intention of the Legislature that it should become a general practice, though unfortunately the statute does not effectually carry out these views. Lastly, we have judicial opinion in favour of the practice, and its advantages are obvious to all parties. Just now the Committee of Judges, who are entrusted with the alteration of the practice of the Courts, are busily engaged in considering new rules of procedure. The Institute of Architects and that of engineers would do well to express their views to them on this point. We have always stated our opinion that special tribunals for particular classes of cases, such as those connected with light, air, and patents, are impossible; but, on the other hand, we have a strong opinion that the present tribunals can be improved by the adoption of the practice of having skilled assessors. It appears to us, therefore, that in certain classes

of cases either party should have a right to ask that it be tried by a judge and assessors; and that if the other party objects, then that an application should be made to the Court to decide if assessors shall or shall not be employed.

If the party who objects to this mode of trial is found to be in the wrong, then he should bear the costs of the application; but the judge, it must be clearly understood, must have absolute power to compel parties to try in this manner if he thinks it advisable. If there was no objection raised, then the action would be tried in this manner as a matter of course. For actions relating to the obstruction of light, and which involve technical points in regard to the construction of houses, a rota of assessors should be appointed by the Institute in the same way as the Corporation of the Trinity House select the Admiralty assessors. For cases involving engineering details, the rota should be chosen by the Institution of Engineers. If this were done, and the practice became common, we feel no doubt not only that many cases would be tried more quickly and more satisfactorily, but that many cases which are now sent to arbitration from a fear lest a judge and jury or a judge alone would not get to the bottom of them, would come before the Court at less expense to the parties and with satisfactory results.

OUR GAS BILL.

THE annual Gas Bill for the metropolis has been rendered as usual, and the result can not be regarded as wholly unsatisfactory. We refer, of course, to the Parliamentary Returns of the accounts of the Great Metropolitan Gas Companies for the year 1882. The feature in these accounts which strikes us as the most remarkable, so far as what we may call the Ædileship, or structural superintendence of the habitability of London, is concerned, is the comparatively small amount that is paid for public lighting. Out of a gross revenue of upwards of three millions, less than a quarter of a million has been paid for public lighting. The figures are 3,078,052*l*., and 223,211*l*., respectively. For the nocturnal brilliancy of London (barring any aid from the electric light), the public pay only about 7*l*., to every 93*l*. that they pay for their own private consumption. No means exist of dividing the latter into the very distinct purposes to which it is applied. It is obvious that a very large proportion of the gas consumed and paid for by private consumers adds to the illumination of the streets of the metropolis, as being burned in or before those brilliant shop-windows which form so luminous a feature in London at vesper tide. We do not know whether the gas companies have the means of forming any independent estimate of the proportion of gas thus consumed. But it is a statistical detail of much interest, which it would be very desirable, if possible, to obtain. We should think it highly probable that the cost of the gas thus "contrived a double debt to pay" is not less than 1,500,000*l*. Of the remainder there would be a proportion devoted to purposes of manufacture, of cooking, and of warming, and the balance will represent the quantity of gas consumed for what we may call strictly private lighting.

Regarded from this point of view, it will be seen how unfounded was the panic which sent down the price of gas shares on the introduction of the electric light. It is true that the latter is now being brought into competition with gas for what we have called private lighting. As to the result of that competition, we defer to anticipate the outcome of experience; but where electric light certainly has the field in a great measure to itself, that is to say, in the brilliant illumination of streets, squares, and open places, it is obvious that even the total displacement of gas by electricity for street-lighting, pure and simple, would be hardly felt by the gas companies. It would not exceed the increment of consumption, in a year or two, from the natural growth of London; and although, as we have before pointed out, the economic value of coal-gas is far higher for calorific than for illuminating use (the richer gases obtained from rock-oil being, on the contrary, better adapted for illuminating than for warming), yet we see no probability that gas will fail to continue to hold its own for many a long day.

It is not, however, so certain that coal will continue to be the source of gas. The coal consumed by the London gas companies in 1882 was over two millions of tons, or more than half the sea-borne coal that enters the Thames. This, however, is only about one-eightieth part of our annual product of coal; and, if it be doubled to cover the non-metropolitan gas supply, only comes to one-fortieth part, or 2½ per cent., of our annual yield. Even so, it provides wages for nearly 10,500 colliers. The annual average price of the best coals (exclusive of city or other dues) at the ship's side in the port of London, during the past sixty years, has fluctuated between the maximum of 35s. 9d. per ton, attained in 1823, and the minimum of 14s. 11d. per ton, realised in 1880. In 1851 it was at the same price, within a penny, as in the last-cited year; and the activity of trade and commerce in 1872–3 drove it up to 31s. 3d. in the latter year. It is thus evident that the supply of coal by railway, which, in the half-year ending 30th of June, 1882, was a little over 3,000,000 tons, has not had the effect of rendering the price of coal steady in London. Mr. Allport gave evidence before the select committee on canals, now sitting, to the effect that notwithstanding the large quantity of coal now borne to London by railway, the mean amount of sea-borne coal sent to the Thames has been practically unaltered by the additional supply. Thus there seems to be no very good reason for anticipating any great change in this part of the case within any assignable time.

Fortunately, however, for the consumers of gas, there is a compensation for the variation in the price of coal in a corresponding difference in the price of coke, and other residual product, so that the constant and known expenditure on works and manufacture is not liable to so severe a disturbance as that which occurs in the price of coal. If we put the price of coal to the companies at 2,000,000*l*. per anuum, little more than another million of revenue from the public covers all their other expenditure, and provides a minimum dividend of 10 per cent. on the ordinary stock. The prices charged to the ordinary consumer in the past year were: by the Gas Light and Coke Company, 3s. 2d.; by the South Metropolitan, 2s. 10d.; by the Commercial, also 2s. 10d.; and by the London Company, 3s. per 1,000 cubic feet. If we take the average price of coal, as before mentioned, at 1*l*. per ton, and allow each ton to produce 10,000 cubic feet of gas, 2s. per 1,000 may be taken as the cost of that part of the total cost of gas which is due to providing the material, and 1s. per 1,000 as representing all costs of manufacture, as a balance after taking residual profits into account.

Our readers may remember the very prompt echo that was given to our remarks, on the 17th February last, as to producing light out of dirt. The result at which we had arrived by the route of chemical theory and analysis was, as a correspondent assured us on the following week, at the very time being wrought out by himself in the form of practical experiment. We have heard nothing of the matter since. But it has too much of the elements of truth in it, and, which may be more to the purpose, too much of the elements of £. s. d. in it, to be allowed to drop. Sixty parts of carbon and hydrogen, we then found, are to be procured from 100 parts of albumen, against sixty-five parts from 100 parts of coal. We should thus want some two million tons of the solid and most offensive elements of sewage to form the source of our gas, if Herr Sandberger's statements be verified. Whence is it to come? It is turning the tables with a vengeance to reply that the sewage of London will not be adequate to supply the amount! Four millions of people, while enough to render impure such a river as the Thames, will not furnish 5 per cent. of the weight of solid gas-forming matter required! Such, at least, is the result of calculations given in our columns years ago, which estimated the solid material contributed by three millions of people at 209 tons per diem, or 76,000 tons per year. This, indeed, is only one-seventeenth part of all the excreta, solid and liquid; the total solid constituents of which may amount to about 200,000 tons per annum for four millions of people. Still we have only a hundredweight where we require a ton. If every Londoner, on an average, now is the cause of the carbonisation of half a ton of coal for the production of gas in the year, he will only displace two quarters out of the ten hundredweight by his contribution to the new source of light.

We confess that this comparison looks to us very cheering. If we look at the immense vomit of the metropolitan drainage, we may naturally conclude that the supply is so far in excess of any possible demand for utilisation, that any attempts thus to diminish the virulence of the plague-spot cast on the Thames would be trifling and unimportant in face of the foul and mighty mass. It does not, however, seem that this is really the case. Two millions of tons is a great mass of matter. It is difficult to present it to the imagination in a concrete form. It is, at all events, considerably more than half the size of the Great Pyramid, which we find noted to be equal to 92 millions of cubic feet. It is equal to nearly twice the amount of sand dredged from the Suez Canal in a year. This bulk of coal, however, the returns tell us, is annually sent to London, and there converted into gas, and that all that portion of the solid contents of the London sewage which we have before defined as conceivably convertible into gas does not make up an amount that can in any way diminish this vast coal trade by the half, if even by the quarter, really seems to us one of the most encouraging facts with reference to the future purity of the Thames that we have yet noted. On the other hand, the consolation to the gas consumer is not so obvious. On the face of the figures, if he had all the benefit of the difference between a costless supply of material, as far as it goes, and his present supply at 1*l*. per ton, it would only come to a reduction of 3½d. per 1,000 cubic feet of gas. And even that much saving would be reduced by the absence, we should conclude, of mercantile "residual products."

THE NEW THEATRE AT FOUNTAIN-COURT, STRAND.

"Then enlarge on his cunning and wit;
Say how he harangued at the Fountain:
Say how the old patriots were bit,
And a mouse was produced by a mountain."

WE recently adverted * to the proposed establishment of yet another theatre in a quarter which of late years, at least, has become identified with the cult of certain of the Muses, amongst whom, however, Polyhymnia and Urania cannot be reckoned. The Occidental tavern and part of Fountain-court will make way for the new structure. The court is so-called after the tavern of that name in the Strand, where met the celebrated Fountain Club, in political opposition to Sir Robert Walpole. This is Strype's "very fine tavern, ... with excellent vaults, good rooms of entertainment, and a curious kitchen for dressing of meat, which, with the good wines there sold, make it to be well resorted unto."† The tavern is represented by Simpson's Dining-rooms and the Divan. On the burning of his premises adjoining the Fountain, Charles Lilly, the perfumer, opened a shop,—now Rimmel's,—at the north-eastern corner of Beaufort-buildings. Lilly, familiar to those who read Steele's papers in the *Tatler*, receiving here for Steele letters addressed to that periodical, used to take them to the "Trumpet," in Shire-lane. He was employed there as officer of Mr. Bickerstaff's Court of Honour, in which people had actions brought against them for looking at their watches while their betters were talking, and for brushing feathers from an exquisite's coat with a cane "of value fivepence." At Beaufort-buildings stood the town mansion, its successor being burned down in the fire of 1695,‡ of the line since of that title. Originally appertaining to the see of Carlisle, the house passed, at the Dissolution, to the earls of Bedford, and from them to Edward, second Marquess of Worcester, author of The Century of Inventions, first printed in the year 1663. During the building of his new house in St. James's-street, Lord Clarendon hired this one for 500*l*. a year from the Marquess of Worcester,§ and here in the night of the 3rd of September, 1660, his daughter married James Duke of York according to the rites of the Catholic Church. Marvell, in his "Rehearsal Transposed," speaks of the Worcester House Conference, *temp.* Charles II. When living in Beaufort-buildings Fielding, dunned by the rate-collector, had recourse to

* See the *Builder*, p. 738, *ante*.
† Conf. also Dennis's "Letters."
‡ See the *Postman*, No. 80 for that year; and Strype, iv.
§ The Marquess had offered it "without requiring from your lordship one penny rent (yet that only known between your lordship and me); it is during my life at your service, for I am but a tenant in tail, but were my interest longer, it should be readily at your lordship's service."—Marquess of Worcester to Lord Clarendon: Lister, iii., 108.

Jacob Tonson for a loan of a few guineas on the security of a yet unwritten work. On his return he met an old friend whose necessities were as great as his own, and gave him the money. Reaching home and hearing that the collector had repeated his visit, Fielding said, more to the credit of his heart than of his sense of a citizen's obligations, that Friendship, too, had called, and had the money,—let the tax-gatherer come again. Part of the tavern site was subsequently occupied by a drawing-school, with Conway and Wheatley amongst its pupils; John Thelwall's lecture-room; and the premises of Rudolph Ackermann, the printseller, who introduced lithography and "Annuals" from Germany, illuminating his gallery with cannel-coal when gas-lighting was as yet a novelty. The Occidental Tavern preserves that repute as a resort of the dramatic profession which, under its former style of the Coal Hole, it enjoyed in the days of Edmund Kean. Procter, in his "Life of Kean," relates how he enjoyed a beef-steak at the Coal Hole, or a devil or a grill at one of the mean taverns near the theatre, and goes on to observe how he found himself out of his element when confronted with elegance and ceremony. Our elder readers will recollect the Coal Hole in connexion with the suppers there presided over by the *soi-disant* Baron Nicholson. As the Occidental it has formed head-quarters for the supporters and adherents of the junior member for Northampton. The steep flight of steps leading from Fountain-court to the Embankment, at whose foot still stands the Fox-under-the-Hill, shows how sudden is the descent to the river at this point. In the back room on the first floor of No. 3, Fountain-court died, on the 12th of August, 1827, aged sixty-eight years, the author of "Songs of Innocence and Songs of Experience" and painter of the "Ancient of Days" and the "Last Judgment." The close of an unprosperous career was solaced by the affectionate solicitude of his wife, and cheered by an unaffected piety which, through a life of unvarying poverty, had never deserted him. Son of a hosier at No. 28, Broad-street, Carnaby-market, William Blake was born there in the year 1759. As the boy exhibited a manifest talent for drawing combined with a total ineptitude for his father's business, they placed him in the studio of James Basire, engraver to the Society of Antiquaries. Leaving his instructor, he gained the acquaintance of Flaxman and Stothard, and secured the favour of the accomplished Mrs. Mathew, whose house in Rathbone-place (No. 27), was frequented by nearly all the literary and artistic celebrities of the day. Having heard him read some early attempts at poetry Mrs. Mathew persuaded her husband, a clergyman, to join him whom Blake subsequently addressed as "Dear Sculptor of Eternity" * in meeting the cost of printing them. Flaxman wrote the short preface to a little volume of some seventy pages 8vo., dated 1783, and entitled "Poetical Sketches by W. B." Blake then set up in business as a printseller, at No. 27, next door to his father, with one Parker, his fellow pupil, devoting his leisure to metrical compositions which, notwithstanding his confessed ignorance of music as a science, he set to beautiful airs. Katharine, his wife, sympathising with his conceptions and readily entering into the practice of his art, not only rendered him valuable help in taking proof impressions of his plates, but even became herself no mean draughtswoman, producing designs as original as her husband's. Without seeking here to account for his faith in the visionary appearances which he believed were present before him from time to time, and with whose guidance and admonitions he fancied himself inspired, we should point out that Blake had singular powers of self-concentration and abstraction from all disturbing elements whenever he applied himself to the task of invention. Permitting himself but little distraction, or even necessary relaxation, he achieved that excellence in colouring upon which his after-fame so justly rests. In this branch of art, indeed, he frequently acknowledged Apelles to have been his tutor, who, he fancied, revealed himself and encouraged him to perfect it. He did not survive to exhibit at Somerset House his marvellous fresco-painting of "The Last Judgment," which might have raised him from unmerited obscurity; but his last completed work, a set of twenty-one plates (executed for Linnell) illustrative of the Book of Job, insured the encomiums of such men as Lawrence, Baily, Chantrey, Westmacott, and James Ward. In his last hours Blake, propped up with pillows in bed, worked upon an impression of the frontispiece to his "Europe, a Prophecy," for tinting which he was to receive 3½ guineas. The specimen is worth any sum now, but that price was more than Blake had commonly received, and was considerable to one who, with his wife, worked and studied, lived and slept, in the one same room. This frontispiece represents the Creator, Wisdom with Him, "when He set a compass upon the face of the depth," * a grand realisation of a passage from Raphael's description of the creation to Adam:—

"——— in His hand
He took the golden compasses, prepared
In God's eternal store, to circumscribe
This universe, and all created things:
One foot He centred, and the other turn'd
Round through the vast profundity obscure;
And said,—'Thus far extend,—thus far thy bounds,—
This be thy just circumference, O world!'" †

With a final effort Blake make a spirited likeness of her who was watching him. "Stay! Keep as you are!" he cried. "*You* have ever been *an angel* to me. I will draw you"; and thus, chanting songs to his Maker the while so sweetly that when his wife stood to hear he said, "My beloved, they are not mine; no, they are not mine," calmly expired that summer evening he whose finest works Flaxman and Fuseli declared would be as much sought after and valued in the portfolios of men of mind as those of Michelangelo himself.

* Letter to Flaxman, dated from Felpham (whither he went to prepare illustrations for Hayley's "Life of Cowper"), 21st September, 1800.

* Proverbs viii. 27.

† "Paradise Lost," book vii., lines 224-231. Such a favourite was this subject with him that he always gave more time and derived greater pleasure when colouring the print than in any of his others. In it he depicts the vision which he declared hovered at the top of his staircase, and made a deeper impression on his mind than all that had ever visited him.

PASSAGES IN AN UNSUCCESSFUL CAREER.

I.—MY FIRST COMMISSION.

IT may not be without interest and profit for some of those who are entering upon a professional career if I set down the circumstances of my first commission; and for the clearer understanding of my story I may as well state that after passing through the usual probationary course in a country office, my spare time occupied in sketching all the old churches in the county, I came to London to seek my fortune in the year 1851,—that second "*annus mirabilis*," —the year of the World's Fair in Hyde Park.

By the recommendation of a friend, who had seen some of my measured drawings of old work, I was received into a London office, and after trial of my capacity was allotted the curious salary of 35*l.* per annum. Whether this was a fair equivalent for my abilities I cannot say, but the sum bears all the appearance of a careful appraisement thereof. I took a lodging in Chelsea, and I can recall, after an interval of thirty years, the incidents of my daily walk thence to my office and back again thither. I often pass along the old route "for auld lang syne" and note how like and yet how unlike it is to the place as I then knew it; and I have, and shall always retain, a special affection for the old landmarks which have escaped the scope of the improver. As I had no other pecuniary resources than the aforesaid 35*l.* per annum my lodging was, as may be supposed, a humble one. A single room, with a right,—not often exercised,—to take tea in the family parlour. London is even now badly off by comparison with the great northern towns for places where young men can profitably spend their evenings. It was worse off then. There were no public reading-rooms and such like, or, at least, I knew of none. A stuffy back bedroom looking into a grimy back yard garnished with a few sooty trees, and enlivened by a set of dingy, rapacious, and impertinent sparrows, was not, to one fresh from a country life, very attractive, especially on summer evenings. Short trips into the country were not so easy nor so cheap as they are now, and it must be remembered that our parks were waste places, and not the paradise of well-kept flower-beds and shrubberies which they have since happily become. Sometimes I would sit and watch Mr. Pearson's church at Vauxhall Bridge slowly rising, and many a sketch I made of its beautiful tower and spire. My pocket would not often permit the enjoyment of the theatre. There were, however, red-letter days, and a stray order for the Haymarket when Buckstone and Compton and Mrs. Fitzwilliam were in their prime, was a balm for a whole week's *ennui*.

On one happy day,—how well I remember it,—a friend, who held some subordinate professorship in a great collegiate establishment in Wildshire, wrote, telling me that he *thought* he had obtained for me some professional employment in connexion with the college, and would write again. Oh! cruel suspense. Better to have left me in sweet ignorance than thus to stretch me on the rack of expectation. In a few days, by calculation, weeks in effect, a note from the same hand brought particulars. The college building had been a nobleman's house, and amongst the various re-appropriation of the rooms for its scholastic purpose the ball-room had been told off to do duty as the chapel. Now, however, it was the intention of the authorities to pull this down and to build upon its site a new Gothic chapel *à la mode*, and my friend had persuaded the powers to allow me to submit sketches for the same. Here, then, was my chance. I set to work at once. My own little back room became, indeed, a busy place. The old-fashioned wooden bedstead occupied nearly the whole of it, and left but a narrow passage between it and the chest of drawers, which extended from the window on the left to near the door on the right. By sitting on the edge of the bed, however, and slanting the drawing-board upon the handles of the upper drawers, I managed pretty well; and nothing could have been more convenient for the saucers and palettes than the neighbouring wash-stand, so very close at hand. This sudden accession of professional occupation brought its anxieties. First, should I send the sketches in pencil, not too laboured, as if thrown off with practised skill? or ought they to have the attractiveness of colour to recommend them? I was no colourist, and knew it. Pen and ink had not yet become the fashionable medium. I decided on pencil, and as a sort of compromise between a mere uninviting architectural drawing and a water-colour sketch, I hit upon the idea of using tinted paper, and even thought of touching up the high lights with a little chalk or Chinese white. I bought a sheet or two of tinted paper, with a surface, I remember, like a Bath brick, and went to work in earnest with a pencil somewhat too soft for the occasion. A few days after the despatch of the precious parcel from the Golden Cross, Charing-cross, I received by post from my friend the blessed assurance that my design was not only approved, but universally admired.

But the ideas of the promoters had meanwhile expanded. The chapel was to be a church, to accommodate not only the inmates of the college, but the neighbouring rustics. It was to be Early English in style, and was to have a tower and spire! I was invited down into Wildshire to "prospect," as our cousins say, and thither I went part of the way by train and part by stage-coach, for the stage-coach then ran in remote Wildshire, careering briskly and joyously over the bleak moorland and through the deep-wooded valleys of the loveliest of English counties.

On my return I soon produced a grand design, working early and late and (I fear) "carrying on" a little before my less favoured acquaintances. This second design was also approved. But now a little mystery began to gather round the affair. It was communicated to me verbally by a friend of my friend that it was felt that the employment of so young and untried a man on so important a work was not unattended with risk. I was kept but imperfectly informed of what was passing, and my anxieties accumulated, when it was at last broken to me that the college had thought it only prudent to take the advice of some architect of eminence. Architect's name not disclosed. Had I any objection? Of course not. Full of confidence in myself I was ready to run the gauntlet of the whole Institute. There was, no doubt, something hazardous in this importation of a new professional element into the case, but I "saw it not, thought it not." Strange to say, the architect's report was entirely favourable. A little trifling alteration in the framing of the nave roof was all he had to suggest. Nay, so friendly towards me did he profess himself to be that he conveyed to me indirectly his willingness to receive me into his office, and negotiations to that end resulted in a sudden

leap in my income from 35*l.* to no less than 80*l.* per annum. Was ever man so blest? But, owing to some causes which have never yet been explained, I could not get my plans again, and this was a constant source of uneasiness. Of course I kept no copies, so eager was I, when the labour of preparing the originals was over, to get them before my patrons.

An ecclesiastical "Jorkins" now appeared upon the scene. I was told that before anything could be done high ecclesiastical sanction of my design was necessary, and that the dignitary in question was unhappily by no means struck with the excellence of my plans. He had scruples, too, as to the *morality* of employing an untried man, and entrusting him with the administration of some thousands of pounds; and he had, moreover, an architect of his own who possessed his entire confidence. This was disconcerting. Every one was my friend, almost every one, and no one could further the business in my favour. My architect employer was very friendly, but he knew nothing of the plans or of the then state of the project. I was obliged to sever my connexion with him because the 80*l.* per annum were not paid, and nothing but the very smallest fraction of that sum did I receive. I was pressed on every side, and once more threw myself despairingly on the mercies of the great metropolis for a living. Appeals to the authorities at the college brought no response. At length I heard, incidentally, that the church was making good progress under the direction of the architect to the ecclesiastical dignitary; and I learned on inquiry that he was the brother of the architect who had reported upon my plans, and further that the two brothers were at the time working,—well, as brothers should work,—harmoniously together.

This state of things gave me a *point d'appui*, and I again laid the case before the college, which brought me from the head of it a civil letter, laying the whole blame on "Jorkins," and what was more to the purpose enclosing a cheque for exactly one-tenth of what my commission would have amounted to.

But I was poor, I was friendless, and I was heart-sick. I had realised how hard it was to "kick against the pricks." I had not been careful to get any written instructions from any responsible person, and I was practically without remedy. The church is built, and is, I have been told, "a credit to all concerned." I have not had the heart to go and see it, and cannot, therefore, say whether my drawings were used or not; probably not, for the architect had plenty of ability. And thus weary and disheartened, ended my first commission. I have had others since, and I have been more careful about the preliminaries, but I have never since experienced either such a glow of hope or such depths of despair at success or failure. With one exception all the actors in the little drama I have briefly related, besides myself, have gone to their long home, and of the dead nothing disrespectful shall even be *thought* by me. But I should advise the youngest member of my profession to be clear about the terms upon which he goes to work, and, if I may say so, not to be unduly trusting in the entire disinterestedness of all his professional brethren, If the story of my first commission gives him any hints, and teaches him any useful lessons in the conduct of his own, I shall not have written altogether in vain.

THE NEW GERMAN THEATRE AT PRAGUE.

THE preparations for the building of the above structure are so far advanced that the details of the work are now being fully arranged. The new theatre is designed to accommodate 2,200 persons. The boxes will be 90 in number. The stage will have a depth of about 65 ft., and its upper portion will be arranged in such a manner as to allow of the scenery and decorations being placed in position according to the most improved principles. A spacious *foyer* is comprised in the plans and a wide corridor will separate it from the auditorium. There are special exits from all parts of the theatre, leading to the open air.

Electric illumination will be employed, and the arrangements permit of the stage and auditorium being made into a ball-room without much difficulty. The cost of the building (exclusive of the site), is estimated at about 70,000*l.*, according to the *Hamburger Nachrichten*.

THE EMPLOYMENT OF ARTISTIC MATERIALS IN THE ARCHITECTURE OF HOUSES AND HOSPITALS.*

IN describing the objects in this Museum, I shall limit myself to those which are plainly visible to you in this hall; thus, of necessity, omitting notice of the splendid food collection generously given us by Mr. Twining, which you have seen in the corridor. My subject prevents me also noticing the important objects relating to drainage and its accessories. But these will be minutely described in subsequent lectures by Prof. Corfield and Mr. Rogers Field and others whose practical acquaintance with these subjects is so well known.

Suffice it for me to say that we have the finest collection known to me of materials for drainage, and for other sanitary works; and that we have provided, also, for educational purposes, some of the very worst; for I need scarcely say that as great practical knowledge is often to be acquired from the history of failures as from the means of success. I must also omit, excepting for a special purpose, all mention of materials which are not decorative, and these may better form the subject of a future lecture on the construction of a house from foundations upwards.

At the outset of my subject I must mention that, although undoubtedly some of the objects here shown us, *e.g.*, the mosaic of the Great Law-giver and first sanitarian, Moses, kindly given to us by the Murano-Venetian Glass Company, are so merely for decorative purposes, yet there are very few which are not immediately connected with our work. Sanitation is not a dry, distasteful study. To use the words of our founder, Dr. Parkes, whom I had the pleasure of knowing in his work at Netley, "Hygiene is the art of preserving health, and of obtaining the perfect action of body and mind. It signifies rules for perfect culture of mind and body. It is impossible to dissociate the two." And, to quote Professor Tyndall, our institution should include "models of all contrivances and inventions which are calculated to promote the health, comfort, and general well-being of rich and poor."

Although, therefore, good drainage and its accessories are the chief requisites for securing a healthy dwelling, the materials of every other portion of that dwelling may aid us in our struggle for health, not only by being healthful in themselves, but by giving brightness and cheerfulness to the houses in which we live. It is this which I am about to describe, aided by the objects around us.

Now the first serious enemy with which we have to contend is damp, and a very sanitary process is that which can defeat it and make a house dry, but this is not quite so easily to be managed as may, at first sight, appear; and before alluding to the decorative processes which may prevent this I will briefly allude to the difficulties to be overcome. With bad materials of any kind, scarcely any thickness of walls seems sufficient to keep out continuous rains when driven by violent winds. At the end of the last century,—that bad time for architecture and construction alike,—it was usual to put an internal lining of wood and plaster as a remedy; but this is liable to rot, and is a terrible aid to the spread of fire. Hollow walls are now often used, and in skilful hands these are effectual. But one of the wettest houses that I ever saw was the result of unskilful work. The same remark applies to concrete and to walls built of many kinds of vitrified bricks quite impervious of themselves to damp, but which let it pass freely through the joints. I have now to consider the subject of an outside casing which shall be at once sound and decorative. For this, I know of none better nor prettier than that of roofing tiles, varied in form, and arranged picturesquely as in many an old house in the home counties, but firmly cemented against the walls. You have a specimen against the walls supplied by Messrs. Lawrence, of Bracknell. Or, if the house be of timber, these tiles can be merely fixed to strong laths, much as the black glazed bricks were to the old houses at Brighton. Somewhat resembling these are the black-headed bricks sent by Mr. Blomfield. Specimens of tiles glazed and overlapping so as to present an even surface are shown by Messrs. Cliff. The red tiles are somewhat harsh at first, but a few seasons' wear cures that, and the softened red is gradually tinted by the beautiful grey and yellow lichens which give so charming a tone to an old tiled roof.

Another good decorative material is such concrete as that sent by Mr. Lascelles, a very strong material, having a very fine face. Highly weather-proof and strong is also terra cotta, which when well-burnt combines well in construction with brickwork, made in such large blocks as to cover, with one piece, many joints of the brickwork, and, at places where the approach of damp may especially be feared, can be formed with projections so as to stop this enemy. (I shall use this term, terra cotta, to express also fire-clay goods.) It has the further advantage that the art-workman can put his own handiwork upon it whilst still soft in the clay. Such work was used in the old Greek temples and churches hundreds of years ago, and still it remains sharp as the day it was cut. It is adapted equally well for plain and moulded surfaces, as you may see in work sent here from Messrs. Doulton, Cliff, Jennings, and Stiff. With this material, or with concrete, may be combined the ornamental tiles, equally weather-proof, of which we have so many examples. They are impervious to wet, and help to make your houses picturesque as well as dry. But do what you will, slates or tiles will fall off; cisterns, I am informed, will overflow, and pipes will continue to burst till plumbers take more care in laying them. Then you require some material which will allow you to redecorate your walls without waiting for their tardy drying. I am afraid that this desideratum is not yet well supplied, but if you want solid work you may cover them with Lascelles slabs, which are made an inch thick, and can be decorated to any design you wish; or with Hitchins's, which are very thin and easily applied; or, in the case of halls, corridors, offices, &c., you may use tiles with great decorative effect, choosing such as are burned of the same colour all through, inasmuch as there is some risk of a surface enamel coming away in flakes when the tiles are fixed against a wall which is continually damp. Still more effectual, though seldom adopted, is the use of tiles detached from the wall, thus allowing warm air to pass in the space thus made and heating the whole surface of the wall. Such panels as are shown by the Campbell Tile Co., and that beautiful dado by Messrs. Gillow, show how this can be done. This plan was sometimes practised by the Romans, and by a tasteful arrangement of the tiles you can get a highly ornamental effect and avoid the risk of fire and rot from a wooden lining. In a warm bath-room, *e.g.*, where you want absolute cleanliness without the cold surface which glazed tiling would otherwise present, this plan would give you admirably what you require.

But you have a much more fearful enemy than damp,—fire. The thousands of instances of total or partial destruction which I have seen as architect to one of the principal insurance offices and to their Fire Brigade, have by no means lessened my feeling of horror at its terrible deeds. Awakened, as the inmates of a house usually are, in the dead of the night, dazed by the flame, half stifled by the smoke, seldom have they the only fire-escape which, so far as I know, is of much use,—presence of mind,—and they have to depend for their escape on outside help. Valuable, then, indeed, is any material which will stay the progress of the fire until help comes. Now, the chief parts attacked in a house are the ceilings, floors, and stairs. The ordinary plaster ceiling, if it could be depended upon, would be a good fire-resisting material, and it may be further protected, as ours is here, by such outward applications, as the Silicate paint. But the best plaster is not altogether a reliable one. It is fixed, and often not very securely fixed, to wooden laths, and has an unpleasant habit of tumbling down, even when not compelled to do this by fire. In particular, it has a strong objection to the vibratory motion caused by the measured tread of dancers over it, and shows its displeasure sometimes by throwing itself down at the most inconvenient time, and spoiling the dancers' supper and the hostess's temper.

The ceilings near you are proof against this, being pressed fibrous plaster,—a light material, which is screwed up in sheets, and (which is the important point) incombustible. The large and highly ornamental one is by the well-known makers, Messrs. Jackson, whose ceilings have been largely used in theatres, and I have reports from one of our most experienced architects in their construction that it is practically unin-

* By Professor Hayter Lewis. Read at the Parkes Museum of Hygiene, June 13th.

flammable. The others are by Mr. Hitchins, whose materials have stood some very severe tests in the way of fire, and both this and Jackson's are easily susceptible of very high decorative effect, at a very moderate cost. The doorways to the library and reading-room are of Mr. Hitchins's material.

The construction of floors is too large a subject for me to enter upon here, and I will merely mention that Mr. Lascelles forms joists of the same material of which his window is formed. They may be designed in panels, and moulded, and for highly decorative purposes may have the panels filled in with tiles, as has been done in the window. Where iron girders and columns are used (though always unsafe to be trusted when exposed to fire) they may be cased in the fibrous plaster which I have before described, or in terra-cotta, as has been done at the Natural History Museum, South Kensington, and the Patent Safe Company's buildings in the City. These casings may, of course, be very highly decorative.

A more important part of the house even than the floors is the staircase. Our best staircases are now built of stone, and are thus considered to be safe from fire; but they cannot be relied upon, although, of course, they do not add to the supply of fuel, and I have seen them utterly destroyed when the rest of the house has been saved, and I have little doubt that concrete steps, such as may be made by the Eureka Company or Mr. Lascelles, *e.g.*, would be much safer. In my present purpose, also, they are more peculiarly adapted, inasmuch as they can be moulded and enriched at very little cost, whilst the carving of a stone staircase, even to a moderate extent, is a very expensive affair. For this purpose, especially of that important part of a staircase, the landing, Mr. Drake's concrete can be well used, as it takes a good polish on both sides, thus serving both as ornamental floor and ceiling. A fair specimen, though somewhat worn, is that in front of me, which is, in fact, part of the proscenium of the new Islington theatre. Another good specimen is in front of the library fireplace.

But in regard to fireproof materials, I ought to mention that I include only domestic buildings, which have little in their contents which can burn, beyond the furniture. For storehouses and factories, filled with combustible materials, I know of nothing which is fireproof, except solid brickwork or terra-cotta.

Generally a wooden floor will be required for rooms, and, for this, hard wood is, no doubt, of much greater value than the ordinary soft woods for all sanitary purposes, as well as for protection from fire. The parquetry borders put by Messrs. Gillow as a wall lining, in order to be better seen, form a thick, solid mass of hard wood, with very close finish,—a most important point, inasmuch as the crevices between the boards, which we are so accustomed to see, afford secure lodgment for dust and dirt, whilst they give an admirable current to the flames. A floor of hard oak, or such material, with a parquet border, is good for use and ornament alike. The danger of fire, however, is a more personal one than I have hitherto described, and many a life has been lost and many a home made desolate by a dress or a curtain coming too near a flame. Now, you see those curtains over the bust of Dr. Parkes. "Flimsy things," you say. Well, they are so, and were expressly chosen and put there not for decorative effect only, but because they *are* flimsy,—would catch fire in an instant in their ordinary state, and blaze into a mass of flame, spreading destruction all around. But those before you, which have been supplied by Messrs. Astrop & Co., have been protected by a very simple method, and you may apply a light to them with perfect safety. Here is a piece cut off from one of them, and you see the result of trying to work into a flame. It smoulders, but that is all. It has been extensively used in theatres, and has been tried on old and new canvas scenery, and has proved to be a protection to them against fire, whilst it does not interfere with the painting or alter the colours, and I am informed that it is most valuable for staying for a time the action of fire on wood.

There is still another appliance for preventing the spread of fire, which we have here in a door made of the Eureka concerete, an incombustible material. Until quite recently iron was well-nigh our only material for this, but it is so heavy that, although a door may be fixed in the best position for staying fire, it too often remains fixed, and so is found open when safety requires it to be shut. Nor can it be altogether relied on even when closed, unless made in the costly fashion as used for safes and strong-rooms, inasmuch as I have seen doors when made only of a single sheet crumble up like parchment in the intense heat of a fire. Then they are extremely ugly, whereas the door which you see can be made of a very ornamental pattern, and at no great cost, to suit the other decorations of the house, according to the architect's design.

Next to the building itself and its decoration comes the warming of it. That little open grate behind me (one of Fletcher's), simple yet effective, is on the principle, so far as the fire space goes, of all good open grates. It has merely a few iron bars in front, and all the rest of thick fire-clay. Round it is a border of light glazed bricks, such as Messrs. Cliff make. They may be made of any colour, and be kept bright and clean with the greatest ease. As a contrast to this, we have Mr. Doulton's stove, which received a prize in the Smoke Abatement Exhibition, and may be made with an open fireplace if wished. It is formed entirely of terra cotta, so that the disagreeable effects attendant on an iron stove are lost. The glazing, which gives so bright a finish, and secures the colouring, is a positive gain in a sanitary point of view, as it enables the surface to be kept perfectly clean with the greatest ease. We have other specimens of stoves and grates, showing how a few glazed tiles will enable them to be kept cheerful and clean.

Following the supply of fire comes the supply of water, and here, I confess, the artistic element enters but slightly indeed. And yet this is just the very place in which one could expect it to enter. In the East, the elegant vase or water-bottle is a conspicuous object,—housed in a niche or replaced by a pretty little fountain. That vase or fountain is represented in our country by a filter, which holds, for our use, that liquid,—that fountain of health, as the poets term it,—whose purity makes it a well-spring of life to us, and, when impure, puts that life in peril. Bring the filter forward, put it where it may be seen and cared for by yourselves, and you will do well. Now, look at that long row of filters,—good, no doubt, many of them in action,—but see how many of them you would care to put into a place of honour in your houses, or which would not spoil the look of that place if you did. There is one made of the bright cheerful Doulton pottery amongst them and many others of his on the shelf behind me, and one or two, lightly sketched over, by Maignen, and a coloured one from Stiff. But not one other is there to which you would care to give a place of honour. And what is the result? That the filter is stowed away out of sight in some pantry as an ugly thing, watched over by the servants, and seldom cared for by any one else. With the cistern which supplies the filter the case is worse. Years back it was not so, and the cistern-front presented to the eye some of the finest specimens known of ornamental leadwork. But all that is a thing of the past; and now, uncared for by any one, stuck up out of sight in some cupboard or roof, covered with dust and adorned only with cobwebs, it passes its retired life in solitude, and whether in good or bad order, clean or dirty, no one but the plumber knows. But give it a tasteful form,—as it used to have, and place it where it could be seen, and there would be an extra ornament to the house, its condition patent to the inmates. There is no practical difficulty in the matter. Mr. Drake makes full-sized baths in his pretty material, and could make cisterns equally well. So could any manufacturer of good terra-cotta. Vessels as large as our cisterns were made, centuries ago, by the Etruscans and Romans, as every visitor to the Paris Louvre knows well. Those beautifully clean enamelled sinks which Messrs. Cliff give us are merely indications of what their large cisterns would be, and they could be carved, moulded, coloured and glazed as richly as any of the most delicate ware sent by Doulton or Cliff or Stiff. I hold that the artistic treatment of the sources of our water supply would be no little help towards insuring the purity of that supply. If it be the case, as I have described, that our cisterns and filters should be better shown, what shall I say of our cowls and windguards, so feelingly alluded to by Sir Charles Dilke? They are not hidden away, but show themselves by hundreds, making chimneys hideous, and working themselves up in every form by which smoke is supposed to be led or driven or sucked. I merely touch upon this tender subject, noting that no one has, as yet, succeeded in this department in emulating, even at the greatest distance, the beauty of the chimney-terminals which form such picturesque adjuncts to our old Tudor mansions.

One more thing I must not omit,—light,—that great searcher-out of all unclean things in a house, and a difficult thing it often is to give proper light to long corridors with rooms on each side of them, and with another story above, thus shutting out all access of light except at the ends, and sometimes even there. I call to mind the country mansion of a nobleman wherein the long corridors presented exactly this difficulty. To glaze the side doors or have openings over them was out of the question, and no other way was open but to cover the top corridor with skylights, and form a large portion of its floor (which was, of course, a roof to the *lower* corridor) of glass. But such a floor must be made ornamental both at top and bottom, and must also be so made as not to be dangerous from its being slippery. Hyatt's ornamental lights can be used in this case with safety, as may be tried by any one in that gallery or in the floor near me, but the specimen in the gallery has been hastily put together so that the underside in this case is not decorated.

Now I will suppose that you have your house ready for decoration. You choose your papers and are pleased with them, and no doubt mostly they are safe enough. But sometimes illness comes in your house. The little ones are struck down and you rack your brains to divine the cause. A little dampness, perhaps, in the walls, scarcely enough to cause alarm. But the doctor, who has noted the symptons, looks round those walls and from his lips there sometimes comes the ominous word "arsenic." For the brilliant colours, whether on papered walls or ladies' headdress, are often the product of that poison. Now look on the walls in front of you. Messrs. Woollams did not put that pretty colouring there merely because it *is* pretty, but to show, as plainly as we can, that the most beautiful tones of colour can be produced by the most innocent means. All the papers shown are coloured by media which have been tested to be absolutely free from arsenic. Given now, a harmless decoration, you still often want a paper which you can clean down, whenever wanted, with water well. You have that want supplied in that bay of Maguire's and in the beautiful specimen sent by Gillows, and again many of these richly designed in relief sent by Messrs. Woollams. But more than this is often wanted. For your bath-room, store-rooms, dairies, pantries, you require something which will give a hard, clean, polished surface, from which all that is not pure in itself and clean to the eye, can be at all times and without fear, washed bodily away.

For all these purposes the glazed tiles supply the need, and for the large swimming-baths (now happily common in well nigh every large town and public institution), the hard, enamelled bricks such as are shown by Messrs. Cliff, and others by Candy, supply a similar want. In your highly-finished private bath-rooms, the finest specimens of decorated tile-work may well be used, and will remove the look of coldness which, perhaps, attaches to the ordinary plain glazed tile, and finished with such ornaments as shown by Messrs. Doulton, Campbell Tile Company, Cliff, and Minton.

I know of no material so beautiful in effect, and at the same time more healthfully clean and durable. Warm the walls and the floor, as I have already described, when the bath is to be a warm one, and I think that you will have a bathing-place more healthful and more pleasing to the eye than the finest marbles could give you. But even in the humblest offices there is no need, but quite the contrary, to make these tile linings plain and unlovely.

A few lines,—a coloured border,—not costly because pretty, will be effective enough, and cause the servants to take an extra pride in keeping their pretty rooms clean and bright.

Especially, and with intense emphasis, do these remarks as to some simple form of decoration apply to hospitals and such buildings where all the surroundings should not only be scrupulously clean, but of a cheerful look to the poor inmates weakened by sickness and cast down by pain.

In one hospital for children now being erected at Birkenhead, the upper part of the windows in one of the large wards will be filled with stained glass representing the leading features

of well-known nursery rhymes, and the walls will be hung with pictures. And such work is going on, more or less, in most of our leading hospitals. In some hospitals, where contamination and bad odours are especially to be feared, all the walls of the wards are lined from floor to ceiling with glazed tiles of a pleasing colour, and fitted accurately, so as to give no lodgment for dirt in the joints, and I have gone through every ward in one of these hospitals, finding scarce a trace of an evil odour in any. For corridors and such parts as have extra hard work to endure, the walls are lined with such enamelled bricks as are shown by Messrs. Cliff. Their bricks are especially cast to fit rounded corners, and so prevent any lodgment of dirt. Nothing can be more clean and healthful than this, which forms itself an ornament, and in no other case can a little extra decoration be applied more easily, nor, I venture to think, with greater need. I wish to ask you kindly to let me bring this more home to you. Cast your eyes on the small part of the walls on our whitened ceiling which, by accident, have been left bare, and not finished, as we intended them to be, for you to see. I do not ask you to admire them. I claim for them no prettiness, and see no element of beauty in them. I have, indeed, heard a wall admired as chaste because it was so white, and described as being delicately tinted because it was light green or yellow. But suppose these white ceilings and tinted walls to be those of a hospital ward, presenting their blank and speechless faces day by day and night by night to the wearied patients. What is there in the cold white or the sickly yellow to help in the cure of the poor helpless creatures? What can they see in ceiling or wall to awaken a pleasing thought which may lighten their sorrow or ease their pain? In a listless mood, they may find an occupation in counting, perhaps, the number of spots on the walls; wondering how they got there,—why there are so many, or why so few, and so having done, fall back on their own dreary thoughts, and thus present to their kind and anxious doctor, patients whose mental weakness will well-nigh frustrate, perchance, the effects of all his most skilful remedies. But let the artist do his share of the work. Let him brighten up the wards, as I have ventured to describe, and as so often done now. Let him put upon that bare wall something to take away the sufferer's thoughts from himself. Show him, it may be, the simplest form of nature, most simply sketched, which may send his thoughts roving far away to some distant scene, leaving for a few seconds only, it may be, all present surroundings in the far distance; or, simpler still, let the dreary wall speak to him by some simple words,—some short sentences, some well-known text, brightly written and adorned, speaking to him of comfort now, and hope for the world to come, and I dare venture to say that in doing so much, albeit it may be so little, the artist, humble though his work may be, will have proved himself of no slight help to the most skilful surgeon or physician.

A discussion followed, some notes of which we may give next week.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

MEDALS AND PRIZES.

THE twelfth and concluding ordinary meeting of this Institute for Session 1882-83 was held on Monday evening last, Mr. Horace Jones, president, in the chair.

The minutes of the previous meeting having been read and confirmed, the Secretary (Mr. William H. White) read a letter from Sir John Monckton, Town Clerk of London, requesting the acceptance by the Institute of a copy of the medal struck by order of the Corporation to commemorate the recent visit of her Majesty the Queen to Epping Forest.

The Secretary also made an interesting statement with reference to foreign donations to the Institute and the relations of foreign architectural societies to the Institute. He said,—First and foremost I wish to acknowledge the services constantly rendered to British architects, both in their corporate and personal capacity, by M. Charles Lucas, one of our Hon. and Corr. Members in Paris. A letter received from him on the first of last month refers to the recently-issued paper entitled "Suggestions for the Conduct of Architectural Competitions," a translation of which he has prepared with a view of submitting it to the Paris architects, and a certain number of copies of this paper have at his request been sent to him for the purpose of forwarding them to the various provincial societies in France. M. Lucas makes a point, as far as lies in his power, of keeping the Central Society of French Architects acquainted with English works, and something he had told me in connexion with this attempt may be, perhaps, profitably repeated here. M. Lucas having been good enough to send copies of his excellent description of certain round churches in this country to a few representative British architects, I had occasion to correspond with him on the subject of his book, which also refers to the round temples of Greece and Italy and to the Church of the Holy Sepulchre at Jerusalem; and I have thereby learned how very slight is the opportunity afforded to our French brethren of becoming acquainted with English publications on architecture and the subsidiary arts. For instance, M. Lucas, desiring to study Mr. Fergusson's works on the Temples of the Jews and cognate subjects, failed to find a copy in any public or professional library in Paris, and his inquiries resulted in the conviction that the only works of Mr. Fergusson available to architectural students in Paris were the "Handbook" and the "History of Architecture," which M. Lucas had himself assisted in obtaining for the library of the École des Beaux Arts. The same may be said of the works of other English writers upon architecture, both living and dead, and M. Lucas writes a very natural and very flattering complaint of a void which can, I think, be to some extent remedied even now. Indeed, Mr. Fergusson, on learning what I have just stated, took steps to forward copies of some of his works to Paris. I need hardly add that it will afford me great pleasure to advise members who may be authors of architectural works as to the best way of offering copies to the professional libraries of Paris, and with the consent of the Council to assist them in transmitting such works. By an interchange of this description, which is something more than a mere return of compliments, practical benefit must accrue to the architects of both countries. Then, sir, another Hon. and Corr. Member in Paris, elected nearly thirty years ago, M. Alfred Armand, has sent to our library a second edition, much enlarged, of his valuable work "*Les Médailleurs Italiens, &c.*," accompanied with a letter stating that his retirement from active practice has not tended to diminish the interest he feels in the proceedings of the English society with which he is associated. The permanent secretary of the Académie des Beaux Arts, the Vicomte Delaborde, has also forwarded a copy of his notice of the late M. Lefuel, the architect to the Louvre and the Tuileries, a memoir which he read to the French Academy in October last. A new work on the alterations, additions, and schemes of improvement in Florence has been received from its learned author, Signor Poggi, an Hon. and Corr. Member (Florence), and numerous communications, large and small, from foreign members and others will be found noted in the lists of donations published in the Journal of Proceedings of this Session. In regard to our relations with the continental bodies, I am desirous of noticing first the Society of Architects of Amsterdam, a society which, founded in 1855, has just taken a position of more prominence than it formerly obtained, and from the beginning of this year the Journal of its Proceedings has been regularly received here. The Amsterdam Society has further strengthened its ties with us by electing, as an Hon. Corresponding Member, the Architect to the Corporation of London, at present occupying the Chair of the Institute, while Mynheer P. J. H. Cuypers, the distinguished architect to the Government museums in Holland, continues to favour us with information of passing events and with presents of drawings of actual works. From Madrid we receive, through the kindness of Don Mariano Belmas, an Hon. and Corr. Member, the Architectural Review conducted by himself; and the Central Society of Spanish Architects forwards its newly established journal. From Rome, the Cavaliere Fiorelli, an Hon. and Corr. Member, regularly sends, as a gift from the Italian Ministry of Public Instruction, the "*Notizie degli Scavi,*" *&c.*, which we possess from its beginning in 1877. From St. Petersburg, we get the organ of the Society of Architects in that capital; it is called "The Architect," and is an illustrated record of modern Russian architecture of great and undoubted value, the volumes of which, dating from 1872, are preserved in our library. The relations recently entered into with the great professional societies of Berlin and Vienna are of a most cordial character. Besides presents of illustrated works from the Berlin Society, I have a letter from Herr Ende, who has recently been elected one of our Honorary and Corresponding Members. Writing on the 22nd of last month, he says that he will endeavour by occasional communications to keep his English colleagues informed of the most important works in progress in Germany, a duty which he regards as the more incumbent upon him, he says, because the acquaintance between the German and English architects has hitherto been very slight; and in his opinion a freer interchange of ideas will be fruitful of good results to both. From Vienna, I have a letter dated the 30th of last month from the well-known Secretary of the Austrian Engineers and Architects' *Verein*, Herr Leonhardt, who says that the publications sent to him by us are regularly read by a large number of the members of his Institute, and that the *Zeitschrift* and the *Wochenschrift*, which he sends to us, and which are always on the table of our Library, contain the principal news relating to professional matters in the Austrian capital. He further states that, at the National Technical Congress, to be held this year in Vienna, the question of professional education is to be again discussed. The solution of part of the difficulty, he thinks, is in finding the best educational method to employ in the "Middle" and "Higher Polytechnic" Schools. To show the difference between Austrian and English opinion on this subject, he says that in his country professional men are unanimous in thinking that a young man destined for the profession of engineer or architect should, after having spent from, say, his twelfth to his fifteenth year in a Middle School, be compelled to go through what is called a Higher Polytechnic School. He concludes with a reference to Mr. Arthur Cates, by whom his relations with us were begun,—relations to which, in a recent address, the President of the Austrian Institute alluded amidst cheers.

Thanks were accorded to the several donors.

The following gentlemen were balloted for and declared to be duly elected, viz.:—As *Fellows:* Mr. W. E. Jones, Bristol; Mr. Lewis Solomon (Associate), Gray's Inn-square; Mr. J. L. Clemence, Lowestoft; and Mr. E. J. Martin (Associate), of the Department of Public Works, Calcutta. As *Associates:* Mr. H. F. Tomalin, of Northampton; Mr. Charles Turner, of Lincoln's Inn-fields; Mr. Oliver Essex, of Moseley, Birmingham; Mr. F. T. Mew, of Mitre-court, Temple; Mr. A. B. Cottam, of Watford, Herts; and Mr. A. W. Cross, of Hastings.* As *Honorary Associate:* Professor W. H. Corfield, M.A., M.D. (Oxon.), Bolton-row, Mayfair.

The Secretary announced that the annual *conversazione* of the Institute will be held in the South Kensington Museum (by permission of the Lords of the Council) on the 28th of June, when the President and Mrs. Horace Jones will receive the members of the Institute.

The Royal Gold Medal.

The next business was the presentation of this year's Royal Gold Medal to Mr. Francis Cranmer Penrose, M.A. (Camb.), Past-Vice-President of the Institute, and Surveyor to the Fabric of St. Paul's Cathedral.

The President began by alluding to Mr. Penrose's early days at Lincoln and Winchester; to his having earned, on obtaining his degree at Cambridge, the distinction of "Travelling Bachelor"; and to his Continental travels. His second visit to Athens was made under an agreement with the Society of Dilettanti, the result of which was the publication by the Society in 1851 of the magnificent work, "An Investigation of the Principles of Athenian Architecture," referring chiefly to the optical refinements exhibited in the ancient buildings at Athens, and it was perhaps only right that he (the President) should state how the curvature of the lines of the Parthenon was first brought to light. Mention of it was to be found in Vitruvius, but the fact was not noticed on the spot until the year 1837, when Mr. Pennethorne, brother of the late Sir James Pennethorne, men-

* All the gentlemen elected Associates have passed the Examination in Architecture.

tioned his discovery to some friends, through whom it reached Mr. Penrose, who spent several months of 1846-47 at Athens in mathematically examining the lines of the Parthenon and other ancient remains. Of these scientific researches Mr. Fergusson had written in his latest work that, though Stuart in 1762 first made known to his countrymen the beauties of Athenian architecture, and though we really *felt* the beauty of the style, it was not until the publication of Mr. Penrose's book that we had scientifically before us the principles which guided the architects in the design of the Parthenon. Such was Mr. Fergusson's mature opinion of Mr. Penrose's early investigations, which, to repeat the words used in the Annual Report of the Council, had been supplemented at various times by communications to learned societies, whereby he had given enhanced value and attracted fresh attention to his original work. The President then mentioned the various papers read by Mr. Penrose on the completion and decoration of St. Paul's, and on other matters connected with the metropolitan cathedral; and he enumerated some of the buildings erected under Mr. Penrose's superintendence. Referring also to the water-colour drawings, for the excellence of which Mr. Penrose had been distinguished from a very early period of his career,—his sketches at Athens having attracted attention similar to that with which those made by him in the Charente had been received,—the President concluded with a sigh of regret that Grecian architecture of the best period was now less studied and appreciated in this country than in former years, or rather perhaps that it was more neglected than it should be; and he trusted that the renewed attention of that old, well-endowed, and popular academic body in which Soane, Cockerell, and the two Smirkes had been names of weight and value, would regain the classical ground that had been too long given up. The Medal having been presented, the President congratulated Mr. Penrose in not alone receiving, but in deserving, the royal gift.

Mr. Penrose, who was heartily cheered, said,—Mr. President and gentlemen: The greatest honour that a man in the architectural profession can receive is that which may be bestowed upon him at the hands of his colleagues and contemporaries who have known him for many years. This honour you have done me in nominating me as the recipient of the Royal Gold Medal which you, sir, in so kindly and such flattering terms, have presented to me this evening, enhanced in value as it is by the implied approval of her most gracious Majesty the Queen. It is also no small matter to be put on the roll of those distinguished men who, in former times, have received this honour. I think it still receives great honour from the first name on the list, our venerated friend Professor Cockerell, as well as from the many distinguished men who have been his successors. I trust I may succeed in assuring you of my extreme appreciation of the honour you have this evening conferred upon me. I wish I had been more worthy of your confidence,—a confidence which has been shown to me throughout. Holding these views, I would not wish to be misunderstood. I am quite aware that the professional works carried out by me have not been on a scale that would have entitled me to be the recipient of this medal. There are many architects who are far more worthy of the medal in that respect, but I seem to be invested in some degree with credit as the representative of Greek architecture. It was my good fortune to light upon what may be called an unworked mine in Greek architecture. It was from Mr. John Pennethorne, who had been making surveys at Athens, that I heard of the existence of certain refinements in Greek architecture, and the work you have referred to, sir, was published by the Society of Dilettanti more than thirty years ago. That society, I am glad to say, is still thriving, still publishing. I have had many evidences of the favourable reception of that work, especially that which you have yourself quoted from Mr. Fergusson; and various people abroad, as well as in England, have referred with satisfaction to the work. Upon it Mr. Watkiss Lloyd has founded some extremely valuable theories upon the proportions of Greek temples, so that I hope the work is not without the value which you have put upon it. When I first heard of your determination to honour me with this medal, I had little doubt that the publication of that work must have been the principal circumstance which guided you in your choice of me. I had also reason to think that the position which I hold at St. Paul's, as successor to Sir Christopher Wren and Professor Cockerell, might also have influenced you in your choice. May I, then, be allowed to say a few words upon what I hold to be our proper attitude with regard to Greek architecture? I am by no means exclusive in my sympathies towards Greek architecture, and I hold that a man who can only see beauty in one art has an imperfect feeling towards architecture. There is a central principle or idea in all architecture. In Greek architecture I believe,—and I think it can be demonstrated,—that idea has its chief manifestation; but it is also evident even in Egyptian as well as in Romanesque and Early Gothic; and, much obscurer, no doubt, in the later Roman work, and in the later Gothic work of the fifteenth century, but reviving again with great distinctness in the Italian Cinque-Cento. What is important to us is to know how we should treat such principle. A love for the Parthenon by no means excludes a love for Lincoln, Salisbury, or Chartres, although it may make us fastidious in the presence of the degenerate Roman work of Baalbec and Spalato. It may also make us critical about such structures as Henry VII.'s Chapel at Westminster, where there is certainly great beauty of detail, although the architecture is somewhat obscured by it. The true work of the architect is with the business of to-day, and he should endeavour, in the buildings which he is called upon to erect, to embody the great principles derived from antiquity,—to incorporate them in his buildings, however, without copying anything bodily from the ancients. There is plenty of room for the careful study and the accurate measurement of ancient buildings, and only by such careful study, examination, and analysis can we possess ourselves of the power to form a correct idea of the principles upon which the ancients worked. At the beginning of the present century, no doubt, nothing in the shape of architecture would "go down" with the public except buildings erected on Greek models, and very many incongruous works testify to that misplaced preference. The same objection will apply to many of the Gothic works of more recent times; but I feel that the true answer to any such imperfect conclusion as that Greek architecture, having been tried and found wanting in this country, is no more worthy of study, is to be found in your kind presentation of this medal to-night; for, as I have said, I understand that the medal is conferred upon me because you regard me as being in some degree an exponent of Greek architecture. It is old advice to tell people to go to the fountain-head, but architects can do nothing better than go to the fountain-head of architecture for study. Students should be directed to economise their time by working at the buildings of the finest, most accepted, and purest character, passing by in the most cursory manner buildings which are in the first instance attractive from mere exuberance of ornament. Proportions are in the first instance to be studied. Your kind approval of what I did many years ago must give, I feel, much stimulus to others who may be engaged on similar works at the present time. Whilst I was at work at Athens I had great hope of bringing home some information to interest you, but I certainly had no hope of the great reward that I have just received at your hands. I should like to say a word about my old friend Mr. Thomas Wilson, my collaborateur, whom I may quote as one who, going direct from the immediate presence of Lincoln Cathedral,—the finest building of its kind, I hold, in this country,—to Athens, was yet not disappointed with the Parthenon. I have only to conclude by thanking you most heartily for the extreme honour you have done me in conferring upon me this valuable medal.

Mr. Ewan Christian desired to add a word or two to what the President had said with regard to Mr. Penrose's connexion with St. Paul's Cathedral. Mr. Penrose had shown the extreme care and the reverential love with which he regarded the noble building committed to his charge, for in all the works that had been carried out there under his direction, that love and care were manifest. In every single detail it had been his anxious care to bring out perfectly the work of his great master, Sir Christopher Wren. Out of all the Surveyors to the Fabric of St. Paul's Cathedral since Wren's time, not even excepting Professor Cockerell, there had not been a more worthy and competent holder of the office than Mr. Penrose. Mr. Penrose was deserving of the thanks of the profession not only for his researches in Athens but for his work at St. Paul's.

The President then proceeded to deliver the other medals and prizes, including the following:—

The Sharpe Prize, in the Pugin Travelling Studentship, awarded to Mr. Joseph Gibbons Sankey. In the same competition, a Certificate of Honour and five guineas were awarded to Mr. Henry Hardie Kemp, and a Certificate of Honour to Mr. Charles Aubrey Bassett-Smith.

[The Pugin Travelling Student, Mr. William Alfred Pite, receives his Certificate, together with the sum of 50*l.*, at the completion of his tour, and only after duly depositing his sketches, &c., made during that tour. A similar rule applies to the holder of the Godwin Bursary, Mr. Hugh McLachlan, Associate.]

An Honorarium of Ten Pounds (Competition for the Tite Prize not awarded this year) was presented to each of the following gentlemen, namely:—Mr. John Wallace, Mr. Hubert Alfred Gregg, and Mr. Harry Anderson Paley.

The Soane Medallion (with 50*l.* to be afterwards paid under the usual conditions) was awarded to Mr. Robert Alexander Briggs, Associate. In the same competition Medals of Merit were awarded to Mr. Frederic Richard Lees Edwards, and Mr. Edmund John Milner-Allen, Associate.

The Grissell Gold Medal was awarded to Mr. Harry Anderson Paley.

The Institute Silver Medal and Ten Guineas (drawings) were awarded to Mr. James Strong.

The Institute Silver Medal and Five Guineas (for Drawings) were awarded to Mr. William Henry Bidlake, B.A. In the same competition a Certificate of Honour and Three Guineas were awarded to Mr. A. Hemingway, and a Certificate of Honour to Mr. Harry Sirr.

The Institute Silver Medal and Ten Guineas (for Essays) was awarded to Mr. Harry Sirr.

Mr. R. Fellowes Chisholm, Fellow, Architect to the Government of Madras, then read a paper on the College at Baroda (Western India), of which we give some particulars on another page.

ARCHITECTURE IN INDIA.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the concluding meeting of this Institute for session 1882-83, held on Monday evening last, a paper on "The College at Baroda (Western India)," was read by its architect, Mr. R. F. Chisholm, Fellow, Architect to the Government of Madras. The preliminary portion of the paper was taken up with a careful vindication of the author's attempt, embodied in his design for the Baroda College, to adapt Indian architectural art and indigenous forms to the changed conditions and requirements of the present day. Like many modern architects, he said, he lacked the courage to declare the particular style of his building, but a native Guzerati writer gratified him very much by describing it as Early Hindu, which was precisely the style he had aimed at. Some arguments and illustrations followed with a view of rectifying a too-prevalent impression that most of the better sort of civil architecture in India is Mohammedan, because it arose under Mohammedan influences, and from the clever way in which the Mohammedans made use of the Hindu workmen, and adopted their forms in building the mosques. The author said he did not claim for the arts of India the mature position attained by the arts of other countries, but nevertheless he could testify from experience that there was a vast art-power lying dormant among the people of India second only to that of the Japanese. Some specimens of pottery exhibited to the meeting, and which were made by native workmen,—mere youths, in fact,—from the author's designs were adduced as an instance of what might be done. With regard to materials available for building in India, the author said he had produced in India, by the aid of native labour, good bricks, roofing tiles, and terra cotta; indeed, they could produce in Madras every known fictile body, from terra cotta to very hard transparent porcelain, and all thoroughly vitrified. Specimens of some of these goods were exhibited. Many the geometrical patterns which passed

Mohammedan were really Hindu, as was also the profuse ornamentation of the texts from the Koran. Any minute description of the Baroda College was the less necessary, as the working drawings exhibited spoke for themselves. The materials were red brick, a beautiful satin-grey sandstone, and glazed terra cotta in red and green. What would doubtless interest them from a practical point of view was the dome-arch. With a view to a description of the principal dome, it was premised that the central hall is a square of 60 ft., recessed at one side for a senator's platform, and on the remaining three sides for a gallery, projecting on brackets 7 ft. into the room. Thus the whole area of the room was, roughly speaking, about 80 ft. square. This form was adopted for acoustic reasons. Mr. Fergusson, in his "History of Architecture," had pointed out the method adopted by the Beejapur builders for counteracting the thrust of a cupola by hanging weight on the inside. This principle had been carried out in the Baroda College. The manner in which this was done and the dome built up was demonstrated by means of a diagram. In this case, it was proposed to leave the great eye permanently open, and to throw a light decorated cloth across it in such a way as to destroy excessive resonance and afford glimpses of the true dome from below. The recess at the north side measured 26 ft., and the distance between the central ribs 25 ft. The supports for the ribs being corbelled out added materially to the lightness of the appearance. The true dome, the author said, was original so far as he knew. The external diameter was 70 ft. The drum rested on a ring of carefully-dressed sandstone, cramped at the joints with gun-metal. The inner dome took a curvature securing the greatest strength; the outer one resting on this, as it were, by sixteen intervening ribs, all the thicknesses were but 1 ft. 3 in. There were thus sixteen chambers, and by opening the lower end to the outside and the upper end to the inside a very perfect system of ventilation was secured. No centre was used during the construction, save to the angles of the false dome. The true cupola was turned ring after ring in brick on a very rough scaffolding. A photograph hanging on the wall showed the scaffolding still in position. The dome from the roof contained 1,400 cubic yards of brickwork, including the four angle-domes covering the square, and costing in Baroda, exclusive of finial and the ornate covering, about 800*l*. The total weight of the dome was about 1,900 tons. The pressure at the base was under 3 tons, and the width of the ring at the base 2 ft. 3 in. All the domes were constructed in the same way; the smaller ones, covering a square of 16 ft., were only half brickwork. The exterior of all would be covered with glazed tiles. At present, owing to the length of time likely to elapse before the necessary quantity could be turned out, the domes were ornamented with coloured sgraffito in cement. In conclusion, the author said that although he advocated an earnest and honest study of native Indian art and its liberal use on palatial and monumental buildings, yet he would seize that opportunity of publicly deprecating as emphatically as possible any vulgar endeavour to squander ornament on new buildings of utility. Let as much thought be bestowed on the design as possible, as much labour on the execution as time would allow. But any attempts to redeem ugliness by useless additions to break a sky-line, or by heaping up mere ornament, were nothing better than vulgar ostentation and a waste of public money. India, like other portions of the British Empire, had already suffered a good deal in this way, and was likely to suffer more. Good architecture would naturally follow in the wake of honest building, but it was scarcely to be thought that the converse would hold good.

In the discussion which followed,

Professor Roger Smith, in moving a vote of thanks to Mr. Chisholm, said that the paper raised a point of great interest, viz., as to the style to be selected for works to be executed by European architects in India. He believed that in choosing to work in the native style Mr. Chisholm had chosen the most difficult path, and, therefore, if he had succeeded, as he appeared to have done, there was all the more honour due to him. The majority of foreign architects would content themselves,—and small blame to them,—with working in the style most familiar to them; and even in a country like India, European architects could often obtain the means of erecting their buildings,—at any rate, those to be used by Europeans,—in a European style. There was a good deal to be said in favour of erecting buildings for Europeans in a style which would be familiar to them. There could be no doubt, however, that the European architect who had studied the native style and native methods of work was able to erect with ease and economy buildings which were not only suited to climatic conditions, but which harmonised with the native structures. There could be no question that Mr. Chisholm had succeeded in mastering the details of the native style, and he had also mastered the Indian method of domical construction. He was to be congratulated on having successfully carried out so remarkable a work as the Baroda College. He (the speaker) had himself made essay in designing works for India, and he did not think that any one who was not prepared to spend his life in that country, and to thoroughly study its architecture, should attempt to produce works in the native style. It was only men who were willing to give up their life to the work who could hope to achieve such successes as Mr. Chisholm had achieved.

Mr. Penrose said he had much pleasure in seconding the vote of thanks, and the more so because Mr. Chisholm had shown his power of adapting the principles of a particular style of architecture to new uses, thus giving point to some remarks which he (Mr. Penrose) had addressed to the meeting a short time previously.

Mr. E. I'Anson said he understood Mr. Chisholm to say that in the construction of the dome no centres were used, and that the square plan of the space covered by the dome was resolved, by means of transverse ribs, into an octangular form. How were those ribs constructed? He presumed they were semicircular?

Mr. Chisholm said that centres were used only at the extreme angles. The "false dome" had centres, but the cupola, or true dome, had no centres at all, but was built up ring by ring, at the rate of about three rings per day.

Mr. Arthur Cates said the subject of the construction of the dome, described by Mr. Chisholm, was one of very great interest. Some years ago the construction of the great cupola at Bejapore was discussed at one of the meetings of the Institute, and it would have been interesting, had time permitted on the present occasion, if Mr. Chisholm could have given some further details of the construction of his dome at Baroda. He trusted, however, that he would be invited by the Council to supplement his paper by a detailed and technical account of the construction of the dome, illustrated by such diagrams as might be necessary. From what he could gather he (Mr. Cates) thought that Mr. Chisholm, working in a native Indian style, had produced a work of which they, as European architects, might well feel proud.

Mr. John Slater, after referring to the ingenuity shown in the construction of domes in India, said he recently had to superintend a building in London which was constructed entirely by German workmen, and that was a large brewery, in which there was a kiln, 20 ft. in diameter. The whole of that kiln was vaulted in brickwork, without any centering whatever. It was an excellent specimen of brickwork, and he did not believe that any English bricklayers could have done the work at all.

The Chairman.—I suppose the bricks were laid flat, in successive rings?

Mr. Slater.—Yes.

Professor Kerr said there was really nothing remarkable in what had been described. A dome required no centering at all. The dome and the arch were two very different things. In the case of the dome there was no thrust at all, if constructed in the way which had been described. Each ring or course was its own tie, and as the successive rings rested upon each other, it was only necessary to make provision below for sustaining the weight of the structure.

The Chairman, in putting the motion, said that very familiar illustrations of domes constructed on this principle would be seen on or about the 5th of August in the shape of oyster-shell "grottos." This being the concluding meeting of the session, he wished the members a pleasant vacation, and trusted to meet them all again next session.

TRURO CATHEDRAL.

THE Earl of Mount-Edgcumbe, in his address as President of the Royal Institution of Cornwall, said:—I may be forgiven for making some special reference to the cathedral, because the work has now risen to a point at which all its main features are sufficiently developed to enable any observant eye to trace them with interest to their completion, notwithstanding the bewildering screen of scaffolding,—in itself an object of curiosity and admiration to practical builders. Some have expressed regret that so much time and money have been spent in preserving and restoring the south aisle of the old St. Mary's Church, but I do not think that feeling will be shared by this society. True, owing to the decay of the elvan, much more than could at first be foreseen has had to be entirely replaced, but the work is beautiful and exceptional, showing in parts some foreign influence, and though, as in almost all our Cornish churches of that date, there is, unfortunately, little or no record of those who built it, it would have been a source of regret if it had been swept away for ever. But besides this, its preservation has been the means of leading the architect to the production in the new church of a special feature, which will distinguish Truro Cathedral from all others, viz., that the four parallel arcades on the choir side form five distinct aisles of varying width and height. The narrow aisle which runs through the restored portion of the old church and the proper south aisle of the new choir is not only a beautiful feature in the general effect, but most ingenious in its structural purpose. The two arcades which form it are tied together above by a series of panelled walls, and thus the piers practically form the southern buttresses of the new building, to receive the thrust of the flying buttresses of the choir, and to enable them to do this, heavy gable buttress tops (which can be seen over the walls of the old aisle) are placed above them for the purpose of diverting the lateral pressure to a vertical direction. The wall above the southern arcade of this small aisle is pierced with circular windows, and forms a clearstory of its own. The spacious crypt, which will be applied to many uses, extends under the whole of the choir and its aisles, and now, before it is vaulted over, can be well seen the height of the whole construction, and the work which the crypt piers, surmounted by large blocks of granite, have to perform in supporting the main arcades above. These arcades, erected respectively as memorials to Mr. Fortescue and Lord Robartes, and the triforium over them, can well be seen, enriched with the tooth ornament, beautifully executed, with the coloured shafts of Polyphant and Northampton stone introduced. In the choir, at the summit of the completed work, can be seen the prominent caps from which the vaulting will spring. At the east end the windows of the crypt and those of the lower tier are now visible, and the great lancets above, which will be twice their height, as well as the great windows of the eastern transept, are in course of erection. The general treatment of the windows internally is very beautiful, consisting, as it were, of a double arcade,—the outer one to be filled with glass, and the inner one forming a curtain or screen. Externally the most complete and, therefore, the most striking part of the building is the north aisle, with its lofty row of lancet windows; and here you can admire the effect of the warm-tinted Mabe granite. At the west end of the old aisle three arches at right angles to each other will support the bell-tower, which is intended to take the place of the old one which was removed; then comes the great porch at the southern end of the transept, the gift of Canon Phillpotts, which, until the nave is built, will be the main entrance, and one of the most striking features of the cathedral. Entering by this porch you see before you the position of the great central tower, two of the piers being completed to the same height as the choir, of which they form a part, while only the foundations of the other two are as yet constructed. Near these the walls of the north end of the transept are commenced, whilst immediately to your left (west of the south porch) is the portion of the baptistery, which is to be built entirely from a distinct fund, as a memorial to Henry Martyn, the great Cornish missionary. The transept, which is now commencing, and which will be proceeded with at once, is to be a memorial to the episcopate of Bishop Benson. There is nothing

which I shrink from so much as making appeals to my neighbours to support a work, but I think this is a time when we may appeal to all those who have funds at their disposal, and try at once to finish the work which the committee have undertaken. I think when that transept is finished,—and I hope we shall see our way to complete it, instead of going to the expense of roofing it in at a lower level,—I think this generation will have done its work, and that we ought not to make any further calls on the county. We shall have done as much as other generations have been found able to do in the work of older cathedrals, and I should say "Let us stop here"; but, in the meantime, the county having expressed itself in favour of going on with this work, I would say let us go on and get it completed.

THE CASTLE AT HEIDELBERG.

THE Grand Ducal Court has authorised the establishment at Heidelberg of an official building committee to replace that hitherto acting at Carlsruhe. The investigations of this body are intended to determine in a positive manner what steps are necessary to save this ruin from decay, and to preserve its artistic beauties. At a recent meeting of the Berlin Architects' Union Herr Schäfer read a paper on the subject, in which (according to the *Tägliche Rundschau*) he maintained that the German Renaissance style was only as yet in its infancy, and that, therefore, it would be advisable to wait a short time until the requisite artistic talent had been developed to do justice to such a national work as the restoration in question. After a lengthy discussion the proposal of Herr Schäfer was approved by a large majority.

AN ANCIENT BRIDGE.

AN interesting relic of antiquity was lately received at Berlin from Mayence, consisting of the remains of piles belonging to the bridge which once led from Castel to Mayence, and which is proved to have been in use fifty-three years before the Christian era. The pieces of wood are trunks of various trees, including oak, elm, and white beech and red beech. They are said to be internally sound, and to have pieces of iron at one end. It is intended to devote part of the wood to the manufacture of a piano-case.

The German papers state that the acquisition of these remains was difficult, as English collectors were offering high prices for such objects. Prince Alexander of Hesse has had some ornamental furniture made from oak which was discovered at the spot referred to, which he has presented to his son, Prince Alexander of Bulgaria.

QUEEN'S SCHOOL, CHESTER.

THIS school has recently been built on a fine site on the city walls, once occupied by the old gaol, and bought by the Duke of Westminster from the Corporation, and presented to the institution. The buildings consist of a fine school-room, 55 ft. by 33 ft., with an open timber roof; five class-rooms, lavatories, &c., and a dwelling-house to accommodate five mistresses. An arched cloister on the east side connects the various parts of the building. The materials are local red bricks, with terra-cotta windows, strings, dressings, and ornament, from Mr. H. R. Bowers's works at Ruabon. The walls are banded with Cefn stone, and the roofs are covered with brindled Staffordshire tiles. The building is called the "Queen's School," by command of her Majesty, and a terra-cotta figure of the Queen occupies a niche over the main entrance, and the Royal arms appear in the principal gable. The total expenditure (exclusive of the site) was 3,800*l*. The contractor was Mr. William Andrews, of Chester; and the architect, Mr. E. A. Ould, of Bridge-street-row, in the same city.

Competitions: St. John's, Forest-hill.—Six designs having been submitted in competition for St. John's Presbyterian Church of England, Forest-hill, that by Mr. J. Theodore Barker, architect, of 8, Furnival's-inn, was selected by the committee, and the work is now being carried out by Messrs. Wall Brothers, contractors, of Kentish-town.

THE NEW ALHAMBRA THEATRE.

ON the 6th of December last, the Alhambra Theatre,—a structure, although not erected for theatrical purposes, yet remarkable alike for its construction and for its decoration,—was entirely destroyed by fire. The original building was designed by Professor T. Hayter Lewis, and was devoted to scientific purposes under the name of the "Panopticon," in rivalry with the old "Polytechnic"; and when it failed to attract the public, it in turns became a circus and a music-hall, until at length the Alhambra Company converted it into one of the most successful theatres in Europe. Only twelve months before the fire very considerable structural alterations had been made to the dome, and the whole building lavishly redecorated; and one of the most striking features in the ruins after the fire was the great iron girder which was, at the time of these alterations, built across the proscenium, measuring some 60 ft. by 5 ft., lying in festoons across some unbroken cast-iron stanchions like a piece of tripe,—showing well the relative effect of the heat on cast and wrought iron.

Of the old building as it stood before the fire nothing will be left in the new building except the front wall, and of this the whole of the ground-floor portion has been removed to provide for the extra entrances and exits required, the superstructure being carried on a continuous compound girder. All the main enclosing walls of the theatre will be straight, but although the rotunda, which formed such a feature of the old Alhambra, will disappear, the auditorium will be covered by a flattened dome carried by columns occupying the same position as before, and standing on the same foundations.

The general arrangements of the new house will be as follow:—The ground-floor will have the usual stalls in front, with boxes on each side, a pit behind, and a larger promenade than before around it. Distinct entrances to the boxes and stalls will be provided, and in addition, a broad and level exit into Castle-street in the rear for public use. On the first tier will be boxes, and a dress circle and promenade with pass staircases on each side, connecting this promenade with the stalls below and with a broad entrance staircase from Leicester-square. On the second tier,—the old saloon level,—will be five rows of seats all round, and an extensive promenade within the house, a large *foyer* on the front. A broad double-flighted staircase leads to this floor from Leicester-square at the north end, and an extra exit staircase is provided at the south end. Our illustration of the *foyer* in this tier is taken from the head of the first-named staircase. There is only one tier, properly speaking, above this, but this is divided into two parts by a very deep step, so that the front, which forms the balcony, is hung down by cantilevers below the gallery, which forms the upper part. Each has its separate staircase.

The front portion of the building will be used in the basement for lavatories, &c.; on the ground-floor for entrances and exits; and in the first, second, and third tiers, as lounges for smoking, &c.

The stage portion of the building will be entirely rebuilt and remodelled, proper fire-proof dressing and waiting rooms provided, the scene-painting room converted into offices, and everything done to make the stage one of the finest in London.

In its construction the new theatre will, perhaps, be unique. With the exception of the stage floor and machinery, and the handrails of the staircases, no wood will be used in the building. The floors, roofs, steps, stairs, stages, box divisions, doors, gallery fronts, &c., will throughout be of concrete, and the roofs covered outside with asphalte. The whole of the framed construction of the building will be in iron, and all the iron will be embedded in concrete or covered with fibrous plaster. The ceiling of the auditorium is framed up with light tee-iron, the panels being filled in with fibrous plaster decorated before fixing.

The new theatre has been designed by and is being carried out under the superintendence of Messrs. Perry & Reed, 9, John-street, Adelphi, the drawings for the ironwork having been prepared by Professor A. B. Kennedy, of University College, who is testing and supervising the iron which is being delivered. The works are in a forward state, the main walls being nearly their full height, and a large proportion of the ironwork being on the ground; but although the commencement of the contract, which involved the clearing of the site and destruction of the old walls, was only made on the 23rd of April there seems a fair prospect that the contractor, Mr. W. Brass, of Old-street, St. Luke's, will be able to complete the building within the short time named in his contract.

Our two illustrations, which were prepared for the Academy, but rejected, "for want of space," show, the one the roof of the auditorium as it would appear from the passage to the balcony forming the third tier, and the other the *foyer* in the second tier, which takes the place of the old saloon.

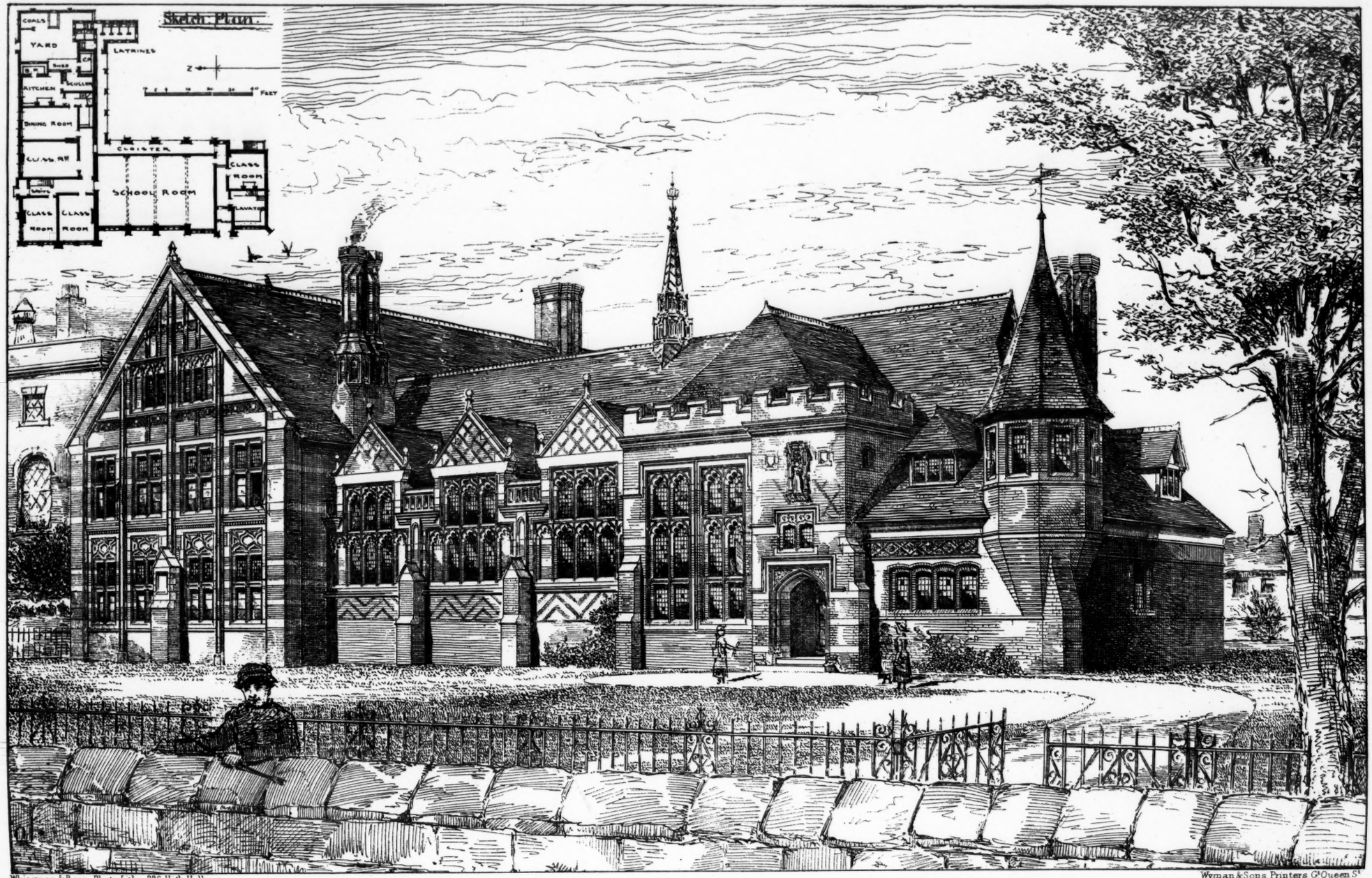
DESIGN FOR PROPOSED SOUTHERN HOSPITAL, GLASGOW.

THE site selected for the proposed hospital is, in many respects, a good one. It stands on sloping ground, having the Queen's Park opposite it on the north-west, and commands a splendid view of the Cathkin Hills on the south-east. No building can be erected on higher ground, as, in fact, the hospital, when built, will overlook nearly all the buildings which are and may be built close by. It is thus an open site, and one which can be easily drained, the ground falling rapidly both ways from the south-west corner.

These falls in the ground made one of the greatest difficulties in preparing the design, the hospital being intended to provide, in the first place, for 120 beds, with sufficient administrative accommodation for a proposed extension for a total of 250 beds, the first cost not to exceed 20,000*l*. It was, therefore, necessary so to use the existing levels that no more walling should be provided for the foundation and under the floors than was absolutely required.

It will be seen that the hospital is of three blocks, connected together by short ventilating corridors in such a way as to form on plan the letter H. This arrangement offered the advantages of sufficient isolation with no more corridor accommodation than was required for proper communication between the several parts. Two staircases only became necessary at eachend of the centre or administrative block, one for males and one for females, lifts for service and patients being close by. The general wards were placed next each other, end-to-end wise, the males being in the north-east block, and the females in the one to the south-west. The centre of the main front has on the first floor an operating-theatre, with a top-light towards the north-east, and a centre window facing the north-west; advantage has been taken of the projection of this part to form below a *porte cochère* as the main entrance, that patients may be admitted without getting injured by wet. The three blocks are on different levels; the centre block having in the basement the kitchen, domestic offices, and store-rooms; in the ground-floor, the physicians' and surgeons' examining and private rooms, the out-patients' and dispensary departments, matrons' and stewards' offices and rooms; on the first-floor, operating theatre and wards, with residential rooms for the medical officers. The main wards occupied the upper floors of the end blocks, the lower floors being filled up with the nurses' and servants' rooms, raised above the ground by open arches, for the purpose of ventilation and economy of walling; owing to the levels the block on the north-east was raised a story higher than that on the south-west. The questions as to sanitary arrangements, heating, ventilation, &c., were duly considered. The wards provided from 1,560 cubic feet to each bed in the main wards to 2,250 cubic feet in the small wards for cases operated upon. The laundry, mortuary, and lodge were separated from the main building, the two former being situated in the extreme corners of the site. The design was submitted by Mr. H. McLachlan.

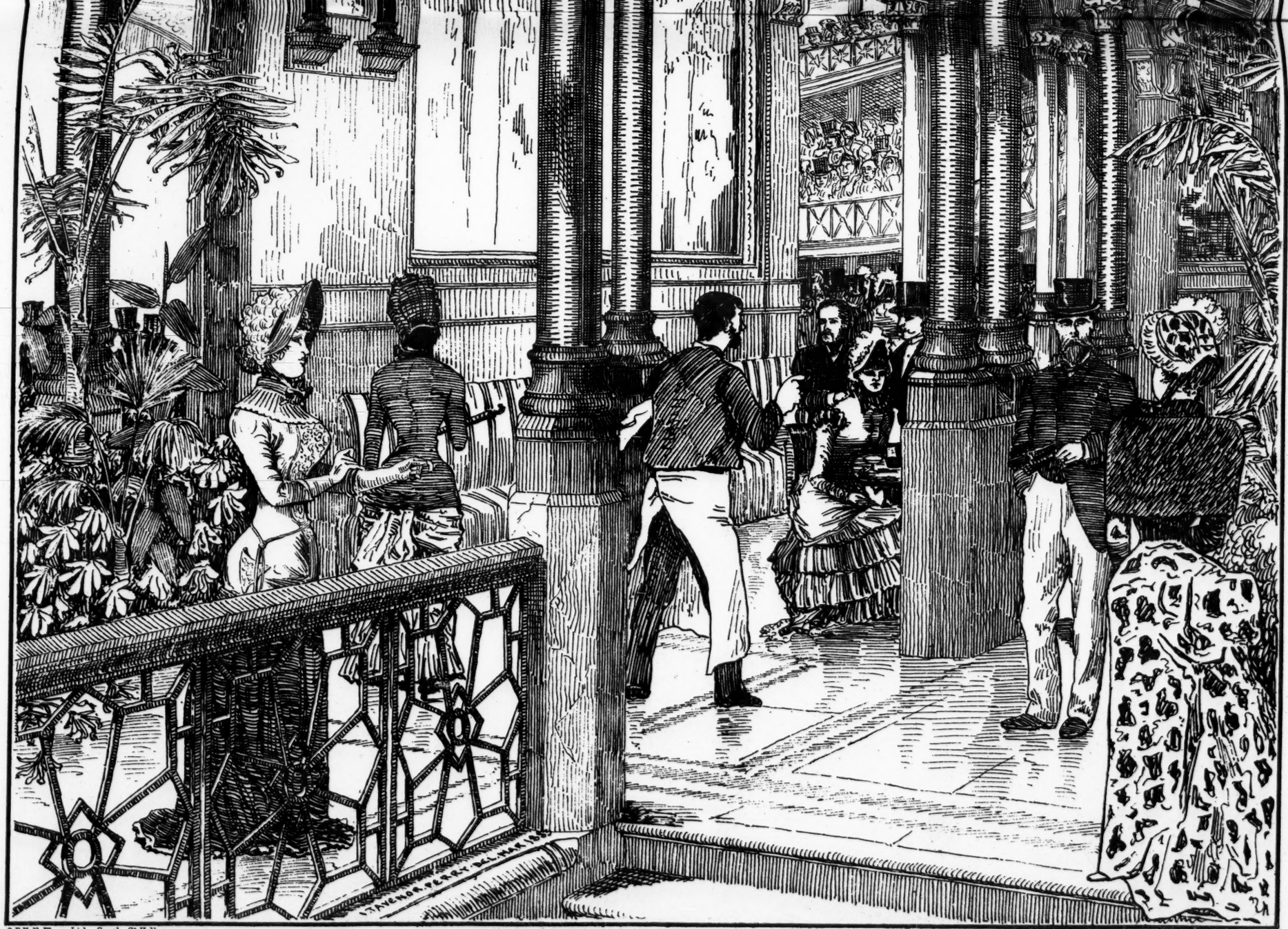
Association of Municipal and Sanitary Engineers and Surveyors.—The Northern District Meeting is to be held at Middlesbrough, on Saturday next, the 23rd inst., when the discussion on the paper on Private Improvement Apportionments will be resumed, and a paper on "The Status of the Local Surveyor," by T. W. Stainthorpe, Surveyor, Loftus, will be read. During the day the members will visit the Tees Scoriæ Brick Works, and also the Cement Flag Works of Mr. J. A. Jones, at Middlesbrough, thrown open to the members.



Whiteman & Bass. *Photo-Litho* 236, High Holborn

Wyman & Sons, Printers, G^t Queen S^t

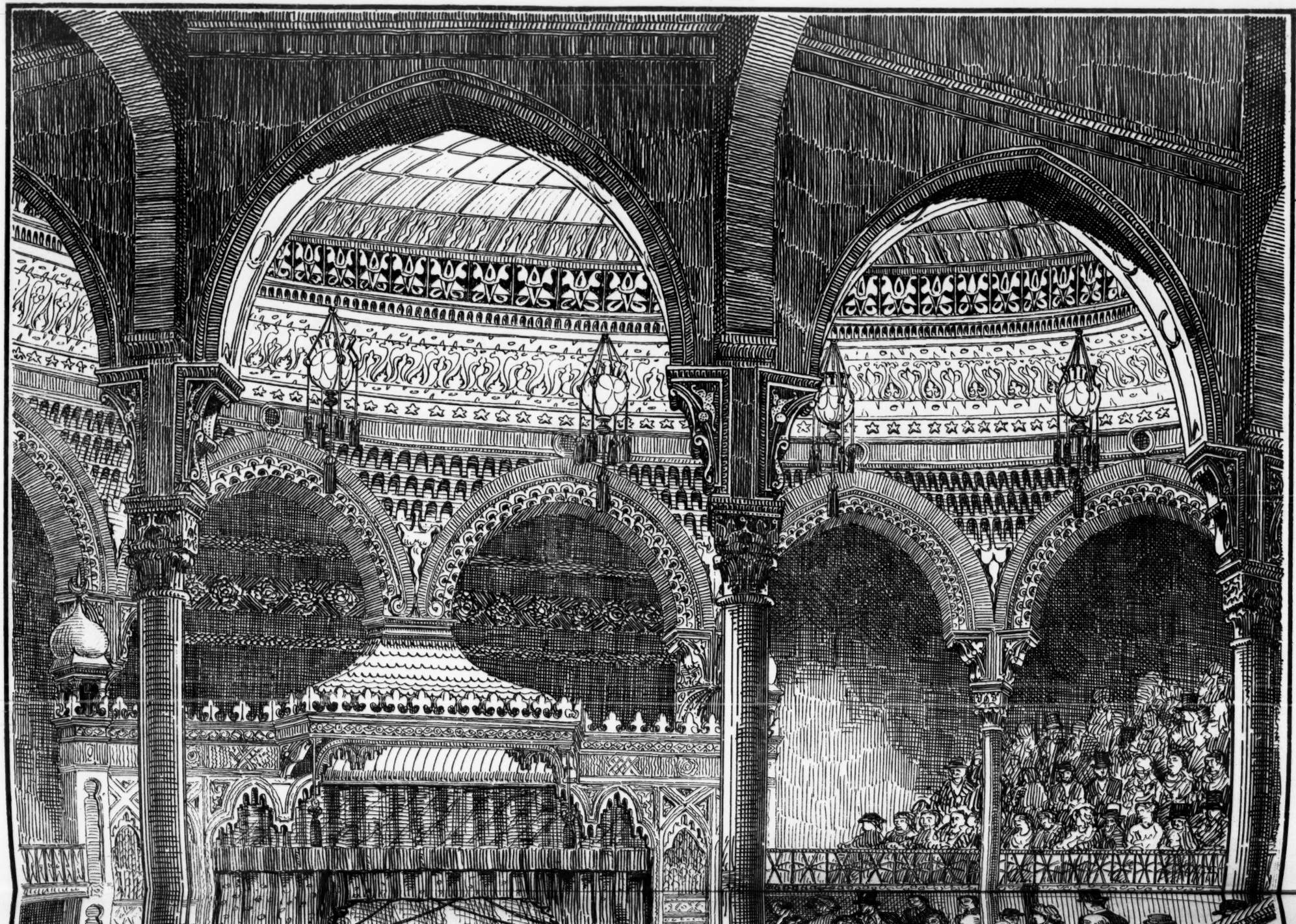
QUEEN'S SCHOOL, CHESTER.—MR. E. A. OULD, ARCHITECT.



C.F.Kell, Photo-Litho. Castle St Holborn.

Wyman & Sons, Printers, Gt Queen St.

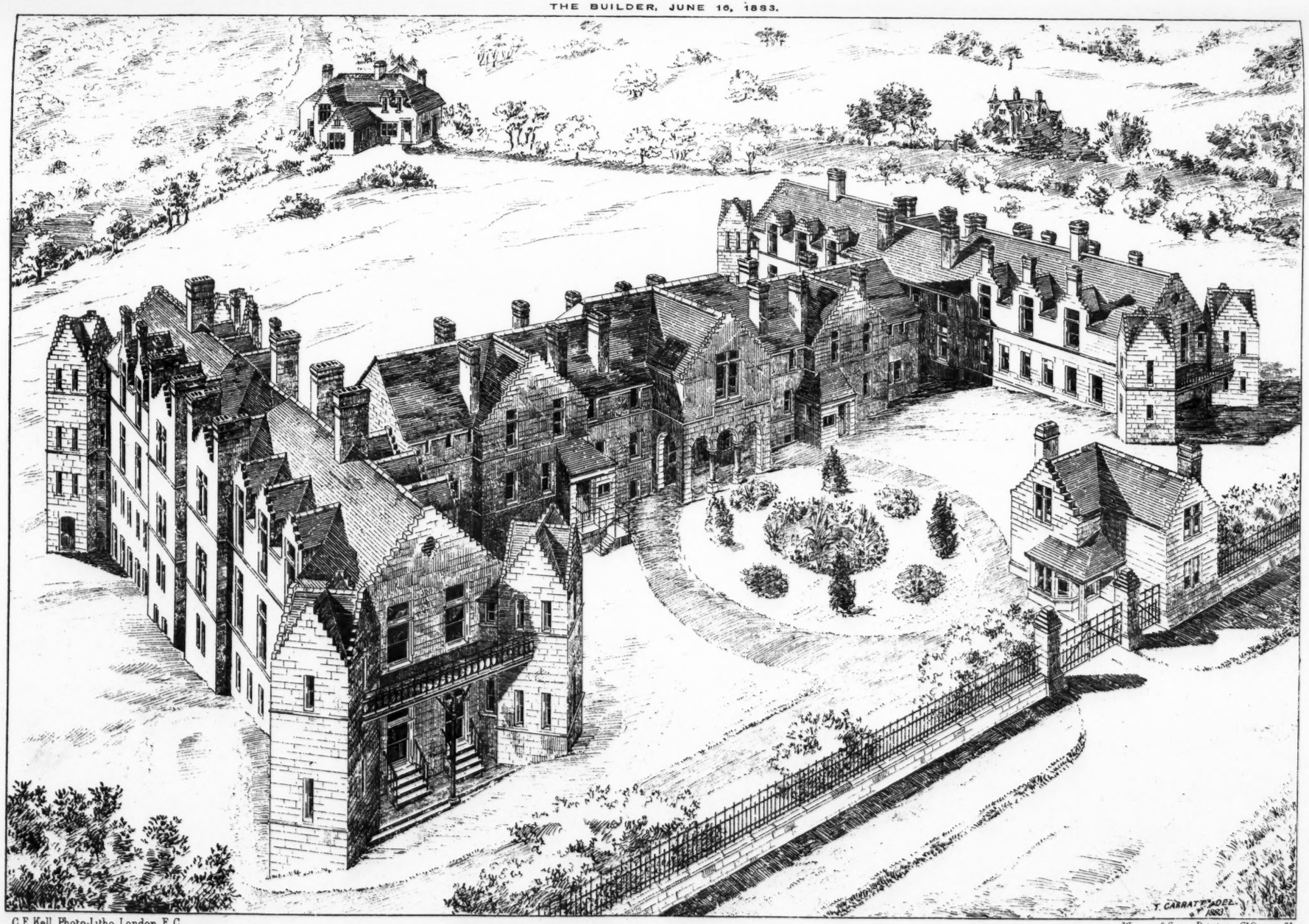
THE NEW ALHAMBRA THEATRE, LEICESTER-SQUARE: THE FOYER IN THE SECOND TIER.—MESSRS. PERRY & REED, ARCHITECTS.



C.F.Kell, Photo-Litho. Castle St Holborn.

Wyman & Sons, Printers, Gt Queen St

THE NEW ALHAMBRA THEATRE, LEICESTER-SQUARE: SHOWING PART OF THE ROOF OF AUDITORIUM.—MESSRS. PERRY & REED, ARCHITECTS.



C.F. Kell. Photo-Litho. London E.C.

Wyman & Sons, Printers, G^t Queen S^t

PROPOSED SOUTHERN HOSPITAL, GLASGOW.—DESIGN SUBMITTED BY MR. H. MCLACHLAN, ARCHITECT.

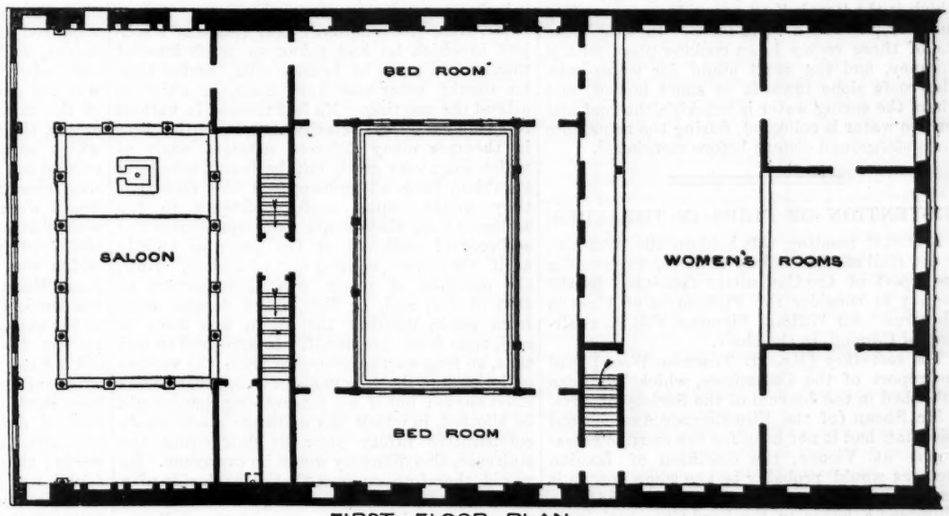
THE DOMESTIC ARCHITECTURE OF INDIA.

A FORTNIGHT ago we printed some portions of an exceedingly interesting paper by Mr. C. Purdon Clarke on this subject, read before the Indian section of the Society of Arts on the 25th ult. We return to the subject this week, as we are enabled to give the ground and first-floor plans of Kirpiram Vekil's house, Surat, with fuller details of its arrangement and construction. The plans (exhibited at the meeting) are the work of two Hindus, students of the School of Art, Bombay.* Commencing with the ground-plan, we first find the porch, which runs along the width of the house, and raised to the height of the plinth, 5 ft. above the street. In other houses, this height varies from 2 ft. to 6 ft. above the level of the street. For the great width, it is shallow; still more so in some houses where the porch is but 2 ft. deep. On the outside edge of the porch runs a curb of teak wood, upon which rests the row of stone bases of the wooden columns, with quaint bracketed capitals, which, in their turn, carry the heavy beam or lintel, the support of the whole upper part of the front of the house.

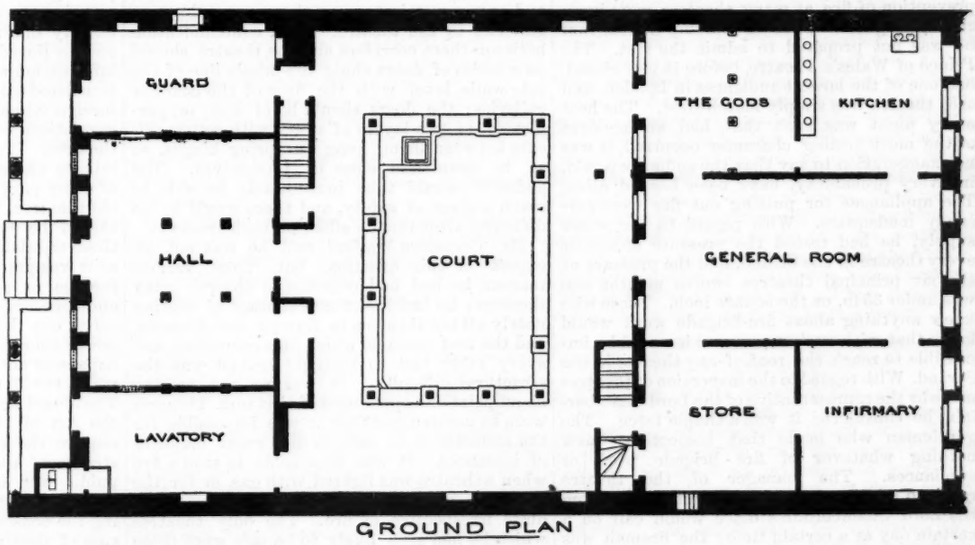
Some houses have no columned porch, but a small terrace, 2 ft. or 3 ft. wide and as many high, answers many of the purposes for which the porch is intended. Early in the morning, the men of the house assemble there, and, sitting on low stools, perform a part of the ritual of their toilettes. During the rains, the porch affords shelter to beggars, or people overtaken by heavy showers, and at night serves as a bed-room for servants of the house. Here travellers and houseless beggars are also allowed to sleep. The principal door is in the centre of the porch. On entering this we come to a large and somewhat dark hall, called "othan" or "parsal," used sometimes as a store or lumber room; as a public office or "kacheri"; or, if the owner of the house is an artisan, as a workshop. Into this hall any dying member of the family is brought, and laid down on the ground two or three hours before he breathes his last. During marriage ceremonies, it serves as a ladies' receiving-hall, and here, also, the servants of the house and lower class guests take their food. The rooms on either side of this hall have set uses. The one on the left is generally occupied by the aged head of the family, when too infirm to ascend the step-ladders which do duty for staircases. The principal staircase is situated near a door of this room, so that it may be watched by the patriarch, who notes all ascending it. In former days the armed servants of the house performed this duty, but now, under the security of the British rule, these picturesque retainers of the "good" old feudal times have disappeared. The room on the right side has its door in the courtyard, and in the house I am now describing an entrance from the hall. It is used as a lavatory attached to the latrine. One side is paved and enclosed with a low wall, sometimes but a few inches high; here stand a row of water-pots, from which the person polluted by having entered the latrine fills his brass vessel, and pouring the contents over his head, fulfils the rites of purification required by his religion. On the side of the hall, opposite to the street entrance, is a door of the same size, sometimes an open colonnade; through which the courtyard is entered. Beyond the courtyard are the women's rooms, and over it the broad balcony, which, running round at the level of the first floor, leaves but a comparatively small central space open to the sky. In small houses, the balcony is carried by beams, crossing from wall to wall, but here a colonnade is necessary. The central portion of the courtyard, sunk some inches below the curb surrounding it, is paved and used as a general bathing-place, well drained by a small gutter running to a cess-pit, just below the front steps of the house. On one or either side are swings for the recreation of the ladies of the house; and here they pass most of their time, some swinging and singing to amuse the others, who, sitting on the floor, labour at the interminable duty of sorting the cereals and pulses which form the staple food of the people. This, the wife's daily task, is performed with great care. A small quantity is placed on the polished surface of a low stool, every grain examined carefully, and separated from those broken and marked by insects. The corridor or covered passage round the courtyard is also used for the performance of the socio-religious ceremonies, such as thread, marriage, and caste dinners; here the family clothes are made, and the family jewels melted and remade by the "sonar." The staircase to the principal portion of the upper floor can be entered from here. It is seldom more than a step-ladder, with a rope rail, which, in time of trouble, serves to haul it up. Under the stairs are cupboard-like compartments for the storage of records and books. One of these contains the entrance to an underground cell or "bhüyar," where the valuable property of the family is kept secure from fire as well as robbery. As in the present day there is little fear of violence, this cell is used as a cool room, for retirement during the hottest part of the day; it is always partly lighted and well ventilated by concealed gratings. In another compartment will be found a secret passage to another cell, the existence of which is known to the chief members of the family only.

Before leaving the courtyard, a large stone mortar sunk in one corner must be noticed. In this the rice is freed from the husk by pounding with long ironshod wooden pestles. In a corner of the sunken centre of the court is a well-head, in this case over a tank, which is filled by rain-water during the monsoons. Leaving the cloistered court, we come to another hall, the women's room, where the wife, brothers' wives, and sons' and nephews' wives pass most of their time engaged in domestic work, in some houses under the superintendence of the owner's mother, who, during her life, is the chief lady of the house. To the right of the hall are two rooms, one for storing grains, the other an infirmary. The first room on the left is set apart for the worship of the family gods. It is furnished with a shrine, in front of which is a low stool or stone pedestal, for the use of the worshipper. On either side are stands for open lamps, and in the cupboards will be found quaint brass and silver vessels thirty to forty in number, as well as incense and different fragrant powders. Small niches in the wall contain the little lamps in which clarified butter is burned during the "puja" ceremonies. The next room is the kitchen, with a fireplace on one side. A raised stand of masonry runs along another side of the room, somewhat like a dresser, with a row of hollows on the upper surface, to hold steadily the large brass and copper pots containing the daily supply of water for cooking purposes. It is from 2 ft. to 3 ft. high, and the front is pierced with open arches, where the utensils of the kitchen are kept.

On ascending the staircase already described, the balcony round the court is found to be partitioned off into rooms on two sides, leaving two



FIRST FLOOR PLAN



GROUND PLAN

* Chiranjilal Doonichand, draughtsman, and B. A. Gupti, clerk to the school, directed by Mr. John Griffiths, superintendent and head master. The description of the house is taken from notes furnished by Mr. B. A. Gupti.

open corridors which serve as passages, or, in certain seasons, for drying grains, and during the hot weather as bedrooms, when the moon shines only. A central door leads to the principal room of the house, the divan-khana, or council-hall over the "parsal." An arcaded daïs runs round this room, raised a few inches above the oblong centre floor. This daïs is either carpeted or covered with a white cotton cloth over soft mats. Here, on great feasts, the guests sit and recline on cushions placed all round against the walls. In the centre portion, the travelling minstrel or religious bard, and the dancing-girls with their attendant musicians, perform for the gratification of the guests and the glory of the giver of the feast; on one side of it is a fountain, fed from a cistern in an upper floor. At the back of the house is another large apartment, where the ladies hold their "at homes." It serves also as a general sleeping-room for the widows and unmarried girls; and here are kept the family stores of clothes in heavy boxes. The whole of the third floor has sleeping chambers with plaster ceilings, above which is the "mala," or space between ceiling and roof, used as a store-room. In this house one of these rooms has a cooking-place with a chimney, and the usual stand for water-pots. The roofs slope inwards in small houses, and where the spring water is brackish, the roof and terrace water is collected, during the rains, into the underground cistern before mentioned.

PREVENTION OF FIRES IN THEATRES.

A PUBLIC meeting was held on the 31st ult., in the Hall of the Society of Arts, to consider the report of the Committee appointed by the Society to consider the Prevention of Fires in Theatres. Sir William Siemens, F.R.S., chairman of Council, in the chair.

The secretary (Mr. H. Trueman Wood) read the report of the Committee, which has been published in the Journal of the Society of Arts.

Mr. Shean (of the Fire Brigade Association) said that, had it not been for the terrible catastrophe at Vienna, the condition of London theatres would probably be the same now as it was ten years ago. In September, 1881, he addressed a letter to the Lord Chamberlain, in which he said that the arrangements for the prevention of fire at many theatres were notoriously disgraceful, but his lordship replied that he was not prepared to admit the fact. The Prince of Wales's Theatre, before it was closed, had one of the largest audiences in London, and that theatre was simply matchwood. The heat every night was such that, had an accident of the most trifling character occurred, it was no exaggeration to say that the audience would, in every probability, have been burned alive. The appliances for putting out fire were certainly inadequate. With regard to the water supply, he had tested the pressure at almost every theatre in the Strand, and the pressure at the six principal theatres twelve months ago was under 35 lb. on the square inch. Those who knew anything about fire-brigade work would know that with such a pressure it would be impossible to reach the roof of any theatre in the Strand. With regard to the inspection of theatres made by the representative of the Lord Chamberlain, he considered it was a simple farce. The gentleman who made that inspection knew nothing whatever of fire-brigade work or appliances. The manager of the theatre received a letter stating that a gentleman from the Lord Chamberlain's office would call on a certain day at a certain time; the fireman was told to put on his best coat, and receive him and escort him round the house. Whether the appliances were in working order or not, he was not in a position to say, so that that inspection was of no use whatever. The Lord Chamberlain's regulations were by no means well attended to; in many instances they were not attended to at all. It was very true to say that whether they were fairly well attended to or not depended principally upon the good feeling of the managers. That comprised everything, but the good feeling of these managers was a feeling guided by £. s. d., and was it right that the lives of thousands of people should depend upon the will of a manager to go to a few pounds expense or not? The firemen at all theatres should be enrolled in one body, under proper superintendence. There should be an established fire-drill at every theatre, in which the *employés* should be regularly exercised at uncertain periods. The use of lights on the stage should be guided by strict regulations. Those who knew anything about the lighting of stages knew that many of the iron gas-pipes were joined by indiarubber tubing, and he had been on several London stages when an accident had occurred by the tubing slipping off; the gas escaped, and the first light which came near ignited it. Again, the seats should be licensed; unless this were done, who was to say whether a row should take twelve or fifteen? Unless theatres were licensed to hold so many, and the manager was made liable if he took in more than the house was licensed to hold, it was impossible to prevent overcrowding.

Mr. Astrop said the great difficulty with most alkaline silicates was with regard to drying, but he had got over that difficulty by using a basic silicate of allumina. Tungstate of soda was referred to in the report, and it answered very well while it lasted. He had seen it used at the Princess's Theatre over and over again; but they were obliged to repeat it once a fortnight, which made it very expensive, on account of the labour, and they had therefore abandoned it in favour of the cyanite.

Mr. Hine (Nottingham) said this was a subject in which he had taken so much interest that he had come to London a day earlier than he should otherwise have done, in order to attend the meeting. He had noticed in various reports and letters relative to preventing fires in theatres many different schemes, some of which were very good, but he found, generally speaking, they all presupposed the fact that they would inspire such confidence in the audience that they would with equanimity and self-control walk out of the place as quietly as if they were coming out of a shop. Now, the question of panic was as important as that of fire, and, in fact, more danger arose from panic, whether the alarm was false or real, than from fire itself. It appeared to him that, so long as the staircase from the various galleries was the only mode of exit, great panics must ensue; but if an intervening space could be allotted, in which the audience could attain comparative safety prior to descending the staircase, this difficulty would be overcome. He would, therefore, suggest that on each side of a theatre there should be a large corridor, wide enough to receive that portion of the audience which happened to be on that side of the house, and as many staircases as there were floors or galleries in the theatre. The communication between these corridors and the theatre should be a series of doors along the whole line of the side walls, level with the floor of the boxes or galleries; the doors should be of iron, or, preferably, of two layers of wood, with cotton silicate between them, hung on spring hinges, so as to open and close of themselves. The audience would thus immediately be able to reach a place of safety, and there would be no difficulty after that in effecting their removal.

Mr. Cornelius Walford said he was not an expert on this question, but, from various reasons, he had had occasion to observe many theatres; he had had the advantage of visiting nearly all the theatres in Europe and America, and the real obstacle which this committee and every other had to struggle against was the structural difficulty. It was no use talking about paint and appliances of that sort. Theatres were so constructed that it was impossible for the audience to be safe, in the great majority of instances. It was impossible to stop a fire when a theatre was lighted with gas, or for the people to get out without danger from panic, quite irrespective of fire. The only theatres which he had seen likely to be safe were those of Russia. Those who were familiar with the theatres of St. Petersburg and Moscow would know that they were built in large open spaces, constructed in some cases very much like the Royal Albert Hall, with an outer shell and an inner shell; when a fire took place in the inner shell, the people had no difficulty in removing rapidly to the outer shell, or the passage between the two, and in that way they were safe. So long as theatres were built in holes and corners, with innumerable passage-ways, there would be extreme peril, so that every time he went to the theatre he looked to see what were the means of getting out.

Mr. John Hebb (Assistant Architect and Surveyor to the Metropolitan Board) said Mr. Hine struck the right note when he said the great difficulty was the prevention of panic. No structural excellence could compensate for the want of presence of mind amongst the audience. He was surprised that the Society of Arts should take the trouble to draw up a report of such a character as this, which was not at all calculated to allay the fears of an audience, but, on the contrary, was rather calculated to create alarm. The dreadful circumstances which attended the fire at Vienna had scarcely passed from men's minds, but the apprehensions excited by that calamity were now beginning to pass away, and he thought the Society was not doing any good work, but a very mischievous one, in calling attention to defects in theatres which were at present incapable of removal. The report was of a very elaborate character, but he did not find one suggestion which was novel or practical. It all dealt with platitudes. They were told it was necessary the theatre should have a good approach, and roomy corridors, and good staircases; and suggestions were made that perhaps it would be a good thing to have a fireproof curtain, but there were disadvantages in that; there were also disadvantages in having a secondary system of lighting. In fact, there were disadvantages attending pretty nearly all the recommendations which were made. It appeared to be a very inconclusive kind of report, and, as far as he could see, would not answer any practical purpose. Nor was the report more useful when it treated of the matter historically. He found, for example, the title of the Act of Parliament under which some very important works had been carried out by the Metropolitan Board of Works was misstated. The powers possessed by the Board were attributed to the Building Act, which dated from 1855; whereas they were conferred by an Act passed only in 1878, and which was an amendment of the Metropolis Local Management and Building Act. Nor did the Society give any information with regard to the extremely useful work done of late years by the Metropolitan Board of Works. They did not say that a large number of theatres had been surveyed, that very important works had been carried out; that in one case an expenditure of about 15,000*l.* was incurred in the acquisition of ground, and the carrying out of works; that, in another case, something like 4,500*l.* was spent on a single theatre; and that in other theatres sums varying from 1,000*l.* to 2,000*l.* had been spent for the purpose of improving the means of ingress and egress, and securing the safety of the public. All this the Society did not know; nor that the Metropolitan Board had acquired a large amount of information with regard to theatres abroad, had translated all the regulations made by different foreign municipalities, and drawn up a code of regulations which governed the erection of new theatres. Those regulations were of a very minute character, and went to the construction of every part of a new theatre. With regard to old theatres, the Board did not insist that they should be brought strictly in harmony with those regulations, but had endeavoured, as far as it was practicable, and with as little interference as possible with the comfort of the audience and the convenience of managers, to carry out the Act of Parliament giving them power over these buildings. The meeting, perhaps, was not aware of the very limited control which the Metropolitan Board had over theatres. The Board had only had control since 1878, and the Act of 1878 only gave the Board power to require the owners of new theatres to make structural alterations in case the safety of the public was imperilled. The exercise of this power is restrained by the necessity of obtaining the consent of the Lord Chamberlain in the case of theatres, and of the Home Secretary in the case of music-halls, and structural alterations could only be such as could be carried out at a reasonable cost. If the Society desired to do anything to secure or improve the safety of the public in theatres, the committee should devote themselves much more seriously to the work, and a report should be prepared of a more exhaustive character, and the suggestions made should be of a practical nature.

Mr. Dixon-Hartland, M.P., said he considered the subject so important that, for the last three years, he had been pressing it on the House of Commons in every possible way. He could not at all agree with Mr. Hebb, and he thought the Society was doing very valuable work in calling attention to the present state of London theatres, and he had no hesitation in saying that, at the present time, almost every one of those was in a state far from satisfactory. Mr. Hebb seemed to be speaking in defence of the Metropolitan Board of Works; but the Act of 1878, to which

he alluded, was in existence for two years before the Metropolitan Board acted upon it in any shape whatever; in fact, they never took the slightest notice of it until he brought the matter before the House of Commons, and he did not believe, if he had not done so, they would have taken any notice of it at all. When he asked the Home Secretary if their powers were sufficient, he said they were, and the Chairman of the Board, Sir J. McGarel Hogg, said the same. If they were not sufficient, they should ask for further powers. But what was the result? Take the case of the Alhambra Theatre; he examined that most carefully immediately after the fire. Under a part of the stage there was a soda-water manufactory in full work, and gas retorts for making gas for the theatre. Over another part of the theatre there was a lodging-house, where over 300 men were allowed to smoke in bed, only separated from the theatre by a thin wooden partition. Under the dress-circle was a great quantity of old properties stored, and the floor had open spaces where matches could drop down, which was really the cause of the fire. Mr. Walford was quite right when he said it was impossible to prevent fires in theatres. The average length of the life of a theatre was under twenty-three years. Do what you might, from the inflammability of the scenes, and the various gas-lights flaring about, it was impossible to prevent fires. He thought the proper way was to have the exits in such a shape that the public should be able to know that they could get out. The real danger was panic, and the only way to prevent panic was for the public to know that in case of fire they could escape without any difficulty. Every part should have a separate exit; no two parts should converge together so as to cause a block, and all the doors should open outwards.

Mr. Herman (business manager to the Princess's Theatre) said he did not speak against the report, because he could say, without fear of contradiction, that there was not one single recommendation in it which had not been adopted by the management which he represented.

Sir Frederick Abel, F.R.S., as a member of the committee which had put forward what was no doubt called a report, but what was, really, more a collection of information, expressed his gratification at the useful effect it already had. It had been objected that it did not deal with the subjects practically; but he would simply say, in reply, that the members composing the committee could not do so with the data before them, owing to the difficulty of getting authoritative information on many subjects from public and private bodies. They could only draw up memoranda calculated to elicit such information as they had been gratified by receiving that evening. It was desirable to direct attention to means which for many years had been more or less satisfactorily developed,—means not for rendering materials uninflammable, for that was impossible in the case of materials which were intrinsically combustible, but for diminishing the inflammability of materials used in structures such as theatres, or for decorative purposes. It had been his duty, in an official capacity, for the last thirty years, from time to time, to give attention to the materials proposed for effecting such purposes, and he could say with confidence that materials did exist, the proper application of which was not attended with any great amount of danger and inconvenience, and which, although they were not susceptible of universal application, in connexion with structural materials which are exposed to view, were extensively applicable, and with very beneficial results. There was no doubt of the benefits to be derived from the application of alkaline silicates which was worked out about thirty-five years ago by an eminent German chemist, Professor Fuchs, and which were used on a large scale in connexion with structural materials in Austria, nearly as long ago as that. They could either be applied alone or in conjunction with various mineral matters, such as whitelead, or, still better, oxide of iron pigments, or asbestos in a finely-ground condition. These materials might be applied for the purpose of providing on the surface of wood a coating which, when exposed to heat, becomes fused or partially fused, and thus formed a kind of vitreous coating on the wood, protecting it more or less from the action of flame. As pointed out in the report, wood thus treated, when subjected to the action of heat, did, like coal in a retort, undergo destructive distillation and yield gas, but the charred fibre itself did not burn, because oxygen was excluded from it. That was the chemistry of the matter; hence it was that combustibility was not prevented, but was greatly retarded when materials of this character were applied to wooden surfaces. Again, canvas materials or fabrics might be not only coated but impregnated with such substances as the silicates, which rendered them almost uninflammable. In many cases, the strength of the fibre was more or less deteriorated by such application, but in the case of scene-painting this would be of minor importance, and could be guarded against. He believed that the application of silicates and other materials in conjunction with them to canvas, and to other fabrics used in decorative purposes, would diminish the tendency of fire to spread when it broke out, and it was only to this extent that these materials could be useful. It would be wrong to expect too much of them, or to imagine that, by coating with asbestos paint, cyanite paint, or silicate of soda and lime, the substance was rendered uninflammable. All that could be done was to prevent the spreading of flames when once fire had broken out, but that was a most important thing, for very often a few minutes were of the most vital importance, not only as regards the safety of buildings, but of those in the building, and it would have a most important effect in diminishing the tendency to panic if it were generally known that managers made what use they could of such materials.

Mr. Hebb asked if Sir Frederick Abel was aware that tungstate of soda had been used in Paris for the purpose of preventing textile fabrics from fire, and had been discarded as being impracticable in use. He had heard that it was very much objected to by the actresses as destroying the appearance of their dresses, and the difficulties with regard to the scenery were also so great that eventually its use was discarded.

Sir Frederick Abel said he knew there had been difficulty in the application of tungstate of soda, and that it had not been persevered with in Paris on that account; but it did not follow that the difficulties might not be overcome.

The following resolutions were passed at the meeting:—

1. "That the present official system for the inspection of theatres is unsatisfactory, and does not adequately provide for the protection of the public from the risk of fire."

2. "That it is important that attention should be given by managers of theatres to the known methods for reducing the inflammability of structural and decorative materials, and that it is desirable that more use should be made of such methods."

3. "That in all cases where serious loss of property has occurred through fire, provision ought to be made for holding an official inquiry by some competent authority."

EXHIBITIONS.

Metallurgical Exhibition at Madrid.—This exhibition, which was opened a few days ago in presence of 2,500 invited guests, is situated in the Buen Retiro Park at Madrid. In addition to the main building, erected by a Belgian firm of contractors, there are about one hundred pavilions and smaller structures distributed in the form of a half-moon in front of the chief edifice. The extraordinary mineral wealth of Spain and the actual products of the mining industry of the peninsula are here well displayed. Like almost all Continental exhibitions, however, the buildings and exhibits are still in a very unfinished state. Owing to the intense heat of the weather the exhibition will probably be closed for some weeks in July and August, opening again in September.

Italian and Spanish Art in Berlin.—An exhibition of Italian and Spanish works of art opens this week in the Winter Garden at Berlin. The collection is one of the greatest value, only the works of the most eminent masters being admitted. The Italian Government has warmly interested itself in the matter, and an unexpectedly large number of excellent paintings and sculptures have been sent from Italy. Among other things, a fine collection of mosaics from the Royal Manufactory at Florence has also been obtained for this exhibition, these latter objects including many examples never yet shown out of Italy.

Sweden.—In commemoration of the introduction of the art of printing into Sweden four centuries ago, a typographic exhibition will be held in Stockholm in July. A great banquet is fixed to take place in connexion with the exhibition, on the 8th proximo.

THE SWISS NATIONAL EXHIBITION AT ZURICH.

THE architectural and constructive features of the exhibition building and its surroundings have already been noticed by us,* but amongst the objects shown, there are many of special interest, including stone for building purposes, which is obtained from various parts of Switzerland. In the lucid and comprehensive introduction which Professor Heim and Herr Meister have contributed to the catalogue, it is remarked that the country may be divided into four zones. That of the Jura yields principally a light yellow sandstone. The second district between the Alps and the Jura mountains comprises horizontal layers of sandstone, marl, &c., amongst which limestone is occasionally to be met with. The gneiss granite of Aargau is used for kerbstones in Zurich, and the red quartz-conglomerate known as sernifite is frequently employed in that canton for building purposes. The third section is the Alpine limestone district, which comprises a large portion of the northern slope of the Alps. The stone is principally dark in colour and is used for street-paving. The fourth zone is that of the central Alpine district, the principal features of which are cystalline silicate formations. The building stones which it yields are granite, gneiss-granite, and gneiss. The cement industry is worthily represented, and it will be remembered that Swiss technical authorities have of late years been active in their researches as to tests for cement, and other matters in connexion with this important subject.

The Swiss timber industry does not seem to occupy an important position.

The group in which building and the fitting up of houses are represented is divided into six detailed sections. In these plans and models joiners' work, metal work, kitchen fittings, heating and ventilation, and, finally, stone-work and roofing, are respectively dealt with.

A novel feature of the exhibition, and one to which special interest attaches, is the collective display organised by the Association of Swiss Hotel-keepers. It is remarked that this is the first appearance of that calling amongst recognised forms of industry, and no doubt the relative importance of the business in Switzerland entitles it to a place in a display which comprises forty-two groups, all connected with the industrial and intellectual development of the Federation. A series of rooms, fitted up to represent what apartments in a well-organised hotel should be, is no doubt of some practical utility, and is, at any rate, a proof of the enterprising character of the Swiss hotel-keepers. Models and photographs of all the principal Swiss hotels are to be found in this group.

FOREIGN COMPETITIONS.

Statue to Hugo Grotius.—The committee which has been formed for the erection of a monument to the celebrated Dutch jurist, Hugo Grotius, in connexion with the recent tercentenary, has issued an invitation to sculptors, both Dutch and foreign, to send in sketches for a bronze statue to be placed upon a stone pedestal. The latest date for receiving the models and drawings is the 30th of November next. Two prizes are offered, the first of 500 guilders, and the second of 200 guilders. An honorarium of 3,000 guilders will be paid to the artist entrusted with the execution of the selected design. The monument is to be erected in the city of Delft.

Hall for St. Gallen.—A competition has been opened for designs for a public hall, suitable both for musical performances and for electoral and other purposes, to be erected at St. Gallen, in Switzerland. An interesting problem will have to be solved by the competitors in this building, as it is required to contain several large rooms, all of which must be capable of being thrown into a single great hall by easily movable partitions, and likewise capable of being subdivided into smaller apartments. The cost of the structure is not to exceed 450,000

* See p. 378, *ante*.

francs, or 18,000*l*. Three prizes are offered of the total value of 3,500 francs, and the designs are to be sent in to M. Dardier, engineer, St. Gallen, by the 2nd of September next.

THE ARLBERG TUNNEL.

THE tunnel through the Arlberg Mountain which is destined to give the western provinces of Austria a direct means of communication with Switzerland and the west of Europe was begun in 1880, and has been making such progress that it is estimated that the work will be completed and the line through it ready for traffic in August, 1884, or fully a year before the date allowed by the contract. The length of the tunnel is 10,248 mètres, or about six miles and a third, and it runs between the station of St. Anton on the eastern, and Langen on the western, side of the mass of the Arlberg mountain. The first borings on either side were commenced in the middle of 1880; and by the end of 1882 the total length of the floor gallery accomplished was 6,813 mètres, or rather more than 66 per cent. of the entire distance. The section of this gallery was from 7 mètres to 8 mètres in area. The boring was effected by Ferroux's machines on the eastern and by Brandt's machines on the western side. The roof gallery of 4½ to 5 square mètres in section was bored by hand, and 6,347 mètres, or 62 per cent. of the entire length had been got through by the 31st of December last. The additional boring and blasting for the requisite enlargement of the roof and floor galleries had also been completed by the same date for a distance of 5,112 mètres, or about 50 per cent. of the total distance. Finally, by the end of 1882, the whole of the masonry of the floor, walls, and roof had been finished up to a distance of 4,885 mètres, being about 48 per cent. of the entire length of the tunnel. The average distance accomplished in the floor gallery per month in 1882 was about 300 mètres, the maximum of any month being 350 mètres. In no Continental tunnel has such a rate of progress been equalled except in the case of the Laveno tunnel on the Upper Italian line between Pino Sesto and Calende. That tunnel which is nearly two miles long, goes through a very firm dolomite, and the boring there was done by the Ferroux machines. In the case of the Arlberg tunnel, the contractors were bound by the terms of the contract to complete 3·3 mètres of the floor gallery on each side of the tunnel per day. In 1882 they made on the average a progress of 10 mètres, and had, in fact, done at the end of the year 1,522 mètres, equal to 461 days' work, more than required by the agreement. For this they are able to claim a premium at the rate of 80*l*. a day. In another part of their work, however, they incurred a considerable penalty. By the provisions of the contract they are bound to proceed with the completion of their work in such a way that the masonry must be kept finished to within 600 mètres of the head of the gallery on each side of the tunnel. At the end of 1882, however, reckoning the two sides of the tunnel, the masonry, instead of being altogether only 1,200 mètres behind the face of the gallery, was 1,928 mètres in the rear, 741 mètres on the east and 1,187 mètres on the western side, so that the arrears for which the contractors were liable to penalty were 728 mètres. This was reckoned equal to 220 days' work. Subtracting this from the 461 days they were in advance in the original gallery, they found that the premium to their credit at the end of 1882 was reduced to 241 days, which at 80*l*. per day represents a sum of 19,280*l*. With regard to these peculiar provisions of the Arlberg contract the explanation given is as follows. The history of the St. Gothard tunnel had shown that it was of little use to push forward the first gallery unless the completion of the tunnel in the rear was carried on pretty promptly. The Railway Company likewise wished to have the entire work finished as soon as possible, and it was thought that the system of premiums and penalties adopted in the contract would act as a powerful incentive to the contracting firms. Such, no doubt, is the natural tendency of the arrangement, but it has proved rather hard on the contractors on the western side, where the extremely unfavourable character of the rock has rendered the task imposed by the contract in reference to the *pari passu* completion of a certain proportion of the tunnel, hitherto insuperable. In fact, as the contractors on the two sides are working separately, the firm working at the western end is paying the penalties while that on the east is gaining all the premiums.

On the eastern side the nature of the strata in 1882, as in 1881, has proved very favourable for boring. At first there was gneiss, with frequent fissures and occasional intervening layers of limestone and clay, so that sometimes it was necessary to resort to provisional timbering; but in the second part of the year micaceous slate was met with, with only occasional faults. The direction of the layers was parallel to the axis of the tunnel, and this facilitated the boring operations. Up to September there were six Ferroux machines employed in the gallery. Towards the close of the year they were increased to eight, which were fixed on a boring carriage, and driven by air at a pressure of from 3½ to 4 atmospheres. The increase of the number of machines made it necessary to carry the gallery higher, but the work proceeded more rapidly. At every attack from 25 to 30, and afterwards from 30 to 33, holes of 40 millimètres of medium diameter, and of a total length of from 40 to 50 mètres, were bored, resulting in an average advance of the gallery by from 1·4 to 1·7 mètre. The time occupied in each such attack was from six to seven hours, 52 per cent. of the time being devoted to the actual operation of boring. The quantity of dynamite used averaged 38 lb. for every mètre made. The rubbish was removed by hauling on the single temporary line, men being employed in propelling the wagons where the boring was going on, while steam-engines were used in the finished part of the tunnel. To avoid smoke in the tunnel, the steam was brought up to a pressure of about 15 atmospheres outside the tunnel, so that for a journey to and fro no stoking was necessary.

On the western or Langen side of the tunnel the work was attended with greater difficulties. At the end of 1881 the strata became more favourable in character, but soon changed again for the worse. In the middle of January, 1882, the rock began to show faults and interstices filled with graphite and clay. Then came micaceous slate, with quartz and gneiss veins and schists, with layers of graphite and clay, rendering timbering necessary. Towards the close of the year very strong, wooden, shaft-walling, with ground-sills had to be resorted to. The water did not give much trouble, and was less abundant than in the previous year. The direction of the layers was parallel to the axis of the tunnel and the dip perpendicular. In the month of February the number of Brandt machines fixed on a boring-carriage, and at work in the gallery, was increased from 2 to 3; and they were driven by water-power at a mean pressure of 95 to 100 atmospheres. Four machines were employed towards the close of the year with the effect of saving time. Each attack lasted from 6½ to 7½ hours, half of which was spent in the actual operation of boring. The number of holes was from nine to twelve, their width being 70 millimètres, and the total length bored from 12 to 18 mètres, resulting in advancing the gallery by from 1·3 to 1·4 mètres. The unfavourable character of the strata caused a loss of time averaging about fifty-three hours per month. The quantity of dynamite used averaged about 36 lb. for every mètre advance.

AMSTERDAM EXHIBITION.

ALTHOUGH, as we have said, from an architectural point of view there is little to praise in the Amsterdam Exhibition,—in fact, the less said the better,—there is an important and attractive feature in the shape of a large collection of paintings, many of them above the average and not a few of them of great excellence. Only four countries, however,—Holland, Germany, Belgium, and France,—have sent art objects in large numbers. The art-productions of Austria, Italy, Spain, Sweden, and Russia together occupy but two small rooms. In the Dutch section the impressionist tendency which appears to prevail in that school at the present time predominates mostly in landscapes, with all its advantages and drawbacks. The lagoons, canals, foliage, and meadows are of great effect when seen from a distance, but their attractions disappear on closer inspection. Amongst the large number of painters who do homage to this leaning in art may be mentioned Bakhuizen, Bilders, Du Chattel, Gabriel, Mesdag, Poggenbeek, Roelofs, and Schippern. Springer paints more in the style of the old Dutch masters; his works will bear closer examination. His paintings in the exhibition which show this are "The Marketplace of Goslar," and two street scenes from a Dutch town. The *genre* paintings in the Dutch section belong to the best in the exhibition. There are some remarkable sketches of soldier life by Isaac Israels, a precocious painter only eighteen years of age. The Germans are most strongly represented. There is quite a galaxy of works from Düsseldorf, whilst the artists of Berlin and München have also sent a great many works. There are but very few pictures from other towns. Quite recently the German section has been enriched by a painting by O. Achenbach, "The Shore at Naples," an autumn landscape by Oeder, and "A Lady Artist in her Studio," by Siegert.

The Belgians shine by *genre* paintings, some of the best works of the school being sent by Jan van Beers. This artist paints very skilfully, though without any great conception; but a veiled sensuousness is a characteristic of all his pictures. Of other works of excellence in the Belgian section may be mentioned a scene of children riding on donkeys at the sea-shore, by Jan Verhas; a lady in her boudoir, by François Verhas; another lady playing the guitar before the cradle of her child, by Willems, an artist who appears to paint with predilection satin dresses. Of historical paintings, "The Retreat of the French from Russia," and "The French Cuirassiers at Reichshofen," both by J. van Yverdonck, are the only real battle-pieces of the exhibition. There are also some good portraits in the Belgian department; amongst them some by Émile Delpenée. Besides the Italians, only the Belgians are represented by a large collection of statuary. France has made extraordinary efforts in the art section, hers being the largest and most tastefully arranged collection. Two highly realistic paintings are two scenes taken from the streets of London by Bastien Lepage, one being a shoeblack, the other a flower-girl. Amongst able works may be classed one by E. Dantan, "The Public in the Paris *Salon*," a picture which in its essentials might be compared with a "Private View at the Academy"; one by H. Briscot, "The Philistines of the Province"; Beyle's "Girl from Normandy"; P. A. Cot's full-length portrait of a lady. The portraits of the French are excellent, notably one by P. A. Cot, representing the little son of the painter, and others by Jules Lefebvre, E. Duez, and Bonnat. Strangely enough, a favourite subject with French artists, battle-scenes, are very scarce. Detaille and De Neuville have no paintings in the exhibition; a picture by Protais must be classed amongst those of his of less merit. The nude has become almost a speciality with the French school, and at the Amsterdam Exhibition the artists of France are alone in that department of painting. A young girl, by Jules Lefebvre, is perhaps the best, but a little mannered. A large room in the French section is full of water-colours; another contains beautiful Gobelins, and as beautiful vases sent by the Manufacture Nationale de Sèvres, works of the highest class, and to be preferred to French paintings.

As we stated above, Austria, Italy, Spain, Sweden, and Russia are but sparsely represented. In the two so-called international rooms, which contain their productions, the only Austrian painter who exhibits is Gustav Wertheimer, who has "The Kiss of the Wave," in which a siren is drawing a sailor into a watery grave. Italy has, as to former exhibitions, contributed those sculptures which no artist can praise, but which please everybody,—little children of both sexes, with pretty dresses trimmed with lace. The general public overlooks the conventionalism of the smiling children's faces, and enjoys the whole *ensemble*, the natural treatment of hair, toilette, and other minor points. Falero, a Spaniard, residing at Paris, has sent a witch with utterly red hair carrying a torch. The sea-pieces of Aivasowsky are amongst the more interesting works in the two rooms, which contain a great many paintings below the average.

Queenborough Pier. — The directors of the London, Chatham, and Dover Railway Company having arrived at a definite and final understanding with the Royal Zeeland Steamship Company, the owners of the mail steamships running between Queenborough and Flushing, have decided upon the erection of the pier which was destroyed by fire last year.

THE HUMBOLDT MONUMENTS.

THE chief event of the past month in Berlin was the unveiling of two monuments to the Brothers Humboldt, erected in front of the University in that capital. The statue to Wilhelm von Humboldt, the statesman, jurist, and philologist, was erected at the expense of the Prussian Government; that to the better-known traveller and natural philosopher, Alexander von Humboldt, was raised by a national subscription. The features of each of this remarkable pair of brothers are perfectly familiar to the present generation in Germany, owing to their numerous and excellent presentments in the portraits of Wach, Begas, and Hildebrand, and in their busts by Rauch, David, and Bläser. The sculptor of Alexander von Humboldt's statue is Herr Reinhold Begas, the creator of the Schiller monument. He represents the naturalist as sitting on a block of rock, over which a cloak has been spread. He is attired in an overcoat, knee-breeches, and buckle-shoes, and is leaning on a memorial tablet, on which are engraved the names of Archimedes, Columbus, Galileo, and other pioneers in natural science. There are at his side an herbarium and a globe, indicating Humboldt's botanical and geographical researches. In his right hand the *savant* holds a laurel wreath. On the pedestal his name, "Alexander von Humboldt," is inscribed, and is surrounded with another laurel wreath, about which butterflies, bees, and lizards are disporting themselves. Over the laurel wreath astronomy is represented by genii carrying a telescope. On the pedestal one of the two reliefs represents mankind nurtured by Nature, under the image of a mother suckling an infant, while a second child is trying to reach the other breast. This allegorical group is reclining outside a forest, above which towers the smoking cone of a volcano. The other relief on the right side of the statue contains another allegorical group, representing Science instructing youth. By the side of Science an infant boy is measuring distances on the globe.

The monument to Wilhelm von Humboldt is the work of the sculptor Herr Paul Otto, who lives in Rome. It is in marble, and represents the noble-hearted statesman in the attire of the times of Napoleon I., and sitting on a chair the sides of which terminate in griffins' heads. On his knee he has a book open, while on his right is a scroll consisting of the charter of Berlin University, of which he was the founder. The reliefs on the back of the chair represent Homer old and blind, leaning on a staff, and reciting to the people passages from his poems. On the other side is Socrates teaching his disciples. Over the group is a Centaur listening to the song of Apollo. In the middle are two caryatides supporting a relief representing Athene inspiring Ulysses. On the right of the relief is Archæology seated on a Corinthian capital, while a genius is bringing to her the bust of Vitellius, as the ripest of the plastic works of classical times. To the left is Philology leaning on a tablet, which has the name Socrates inscribed on it. By her side is a genius handing to her a scroll representing history. Both statues are highly spoken of by all competent judges, and in the inaugural ceremony nothing was wanting to lend distinction and *éclat* to the proceedings. The German Emperor, all the Princes and Princesses of the Imperial Family, all the Ministers and the Court were present to do honour to the memory of two of Germany's greatest sons, and to inaugurate their statues on a spot which had hitherto been confined to monuments commemorative of the warlike heroes of the past century of Prussian history.

FROM THE UNITED STATES.

An American Viaduct.—The great viaduct which is being built across Lake Ponchartrain by the New Orleans and North-Western Railway, will, when completed, be 29½ miles long. It will, in fact, be the longest structure of the kind in America. It is built on 32,644 piles, in addition to which its construction will require altogether 15,000,000 cubic feet of timber.

Cotton Factories in the Southern States.—According to the latest reports, the cotton manufacture is being introduced on a gigantic scale into the Southern States of the Union, that is to say, into the very region which has hitherto been content with merely growing cotton. An indication of the rapidity with which the manufacture is being taken up is seen in the fact that, at the present time, there are no fewer than 181 new cotton factories in course of erection in the cotton-growing states. The competition of the "poor whites" and negroes will, it is to be feared, make itself felt before long more or less severely in Lancashire.

The Black Canyon.—The question whether by partial tunnelling or widening, the so-called Black Canyon can be made available for a line of railway is just now occupying the minds of some enterprising engineers in the West. The Denver and Rio Grande Company think so favourably of the project that they have determined to cause a thorough survey to be made of the Canyon. The peculiarity of it is that it is a narrow gorge with perpendicular sides, 3,000 ft. high, with the river Gunison running at the bottom. These walls are of Syenite rock. For a distance of about 1,800 ft. the two walls meet; in other words the river runs for that space underground. The stream throughout is of extraordinary rapidity, and the exploring party on the intended expedition will go literally with their lives in their hands. A boat of the greatest possible strength is being built for the expedition. It will be victualled and provided with various appliances thought likely to prove useful on the voyage. The boat, with its living freight, will start at the upper end of the Canyon, and constant watch will be kept for its arrival at the lower end, beyond the subterranean portion of the course of the river.

The Hudson Tunnel.—The tunnel under the Hudson, which was intended to connect New York with Jersey City, threatens to prove a failure. The work of boring and excavating has, at any rate, recently been confronted with such difficulties that it appears impossible to complete the tunnel according to the method hitherto adopted. The inrush of water has of late been so great that the contractors are unable to make any progress, and unless some more effective plan of operations can be devised they will be compelled to abandon the enterprise.

Electric Railways in America.— Hitherto, while experiments with electric railways have been made with more or less success in several European countries, there has been nothing doing in this matter in the United States. At last, however, a company has been formed, which is to make the first attempt of the kind on the New York Elevated Railway. The motive power is to be supplied by some new appliances for electric transmission of power, invented by Mr. Edison.

THE BIRMINGHAM SCHOOL BOARD AND THEIR ARCHITECTS.

AT the meeting of the Birmingham School Board on the 7th inst., Mr. G. H. Kenrick presented the report of the Sites and Buildings Committee, which reported that they had had under consideration the present arrangements under which the services of the architects to the Board were rendered, and seeing that the Board had erected schools more rapidly than was anticipated at the time this arrangement was made, they recommended that the following addition should be made to Board Minutes Nos. 3,409 and 3,459, regulating the payment for such services:—"Whenever the value of the buildings paid for by the Board and entrusted to them exceed 5,000*l.* in one year, then the architects shall receive a commission of 2½ per cent. on such excess; this resolution to apply only to such work as may be undertaken subsequent to this date." They further recommended that that part of Board Minute, No. 3,409, directing the architects to report upon the condition of the school buildings twice in the year, should be rescinded, and the following substituted:—"That the Clerk of the Works be required to report regularly to the architects upon the condition of the existing schools, so that every school is reported upon at least once a year, and that the architects be requested to bring before the committee the results of their examination of these reports."

Mr. Kenrick having moved the resolution with regard to the extra payment to the architects,

Mr. Hawkes said he thought this afforded an opportunity, at any rate, for the new members, to express their opinion on the arrangements as to the architects. The Board was now asked to add to the remuneration of the architects, Messrs. Martin and Chamberlain, and at a time too, when the Board was resolved to take active measures for the erection of a number of new schools. It therefore became of great importance for them to consider, first, whether they should make the addition to the remuneration which was proposed by Mr. Kenrick, or whether they should not pause, refuse to make such increase, and take steps to consider whether it would not be wise to put a period to the contract which the late Board entered into with those gentlemen. He found that during the last ten or eleven years thirty schools had been erected, at a cost ranging from 14,000*l.* to 15,000*l.* Three more sites had been purchased, and consequently there would be three more schools, so that they were looking forward to a further incumbrance of 45,000*l.* by way of capital expenditure, besides the income outlay in the shape of furnishing. It was, therefore, of the greatest importance for the Board to consider whether they would be doing wisely to adopt the resolution which the chairman of the committee recommended. Looking at the fact that one firm of architects had for eleven years been alone employed by the Board, he had an incurable objection to continue it. Even if the architects proposed to do the work for nothing, such was his feeling that they were acting unjustly to an eminent profession in the town, which was involved in all its taxes, rates, and municipal liabilities, and subjected to the services that burgesses must render, and having amongst its members eminent men who were famed not only in Birmingham, but throughout England, he should feel an invincible repugnance to continue the practice which had prevailed. He therefore opposed the motion, which, however, after some further discussion, was carried by 9 votes to 5.

Mr. Kenrick moved,—"That the Sites and Buildings Committee be authorised to obtain the necessary plans and specifications for the erection of a school for 1,000 children on the site in St. Andrew's-road."

Mr. Hawkes said he should vote against the proposition, because he thought, having erected thirty schools, they might hold their hand a little in the erection of the eight new schools that were talked of. He also objected to it because the architects of Birmingham, eminent as they were in their profession, are to be absolutely excluded from any opportunity of competing. The Board ought to give themselves the opportunity of considering whether they had the best schemes laid before them. As the Chairman of the Estate Committee for many years in the Town Council, he could not help saying that the system of competition was a very wise one. He was told, in answer to that, that the Board would not show much gratitude to the architects by considering whether they should terminate their engagement. Now, their architects did not come to them for gratitude,—they came for £. s. d.; and having paid them, the Board were no more bound to go to them again than any one else a second time to a butcher for a leg of mutton.

After some further discussion, the motion was carried.

THE PROPOSED TOWN-HALL FOR BIRKENHEAD.

DUPLICATE TENDERS.

AT a meeting of the Birkenhead Town Council on the 6th inst., a memorial signed by 650 ratepayers in favour of the new Town-hall being placed in the centre of Hamilton-square was read by the Deputy Town-Clerk, and a long discussion ensued. Mr. Fred. Smith moved that the subject be referred to the General Purposes Committee, and Mr. Houston seconded the motion, which was lost by 32 votes to 8. A letter was read from Mr. E. Gabbutt, contractor, again complaining of the rejection of his tender for the erection of the new Town-hall,* and intimating that proceedings would be taken against persons not named. In connexion with this letter a resolution of the General Purposes Committee was considered, to the effect "that having carefully considered the correspondence and all the circumstances of the case, the tender of Mr. James Leslie, of Bootle, to erect the new Town-hall in accordance with the drawings, specifications, and quantities prepared by Messrs. C. O. Ellison & Son for 40,497*l.*, be accepted," subject to the usual conditions as to the fulfilment of the contract. Several questions were asked as to the duplicate tenders, the telegram from Mr. Leslie reducing his tender, &c., and after

* See *Builder*, p. 620, *ante*.

explanations, which were accepted as satisfactory, the resolution of the committee was adopted, Mr. Fred. Smith withdrawing a motion to refer the matter back a second time.

Reporting to the General Purposes Committee on Mr. Gabbutt's last letter, Messrs. C. O. Ellison & Son divide the subject into four parts:—1. The custom of accepting the lowest estimate for public work, unless there are good reasons to the contrary. 2. The foot-note upon Mr. Gabbutt's tender. 3. The works referred to by Mr. Gabbutt. 4. The supposed difficulty in his getting quantities. They say:—

"Nos. 1 and 2 must be taken together. The custom alluded to is that on which we always act, and but for the foot-note Mr. Gabbutt admits putting on his tender, we should have urged its acceptance, having great faith in the reputation left by his father in the trade, although we have seen Mr. Edmond, or Edward, but on the one occasion of his calling as to this work. The foot-note, however, being practically an attempt to secure, behind the back of all the other competitors, terms far more advantageous than those on which they had tendered, and the acceptance of which would at once have handed over to Mr. Gabbutt all the advantages we had been at so much trouble to secure for the public benefit, we at once lost all confidence in him as the contractor for the proposed work, and in common fairness to the others recommended the adoption of the next lowest tender sent in upon the terms of the specification you had already approved. . . . .

Mr. Gabbutt says in his letter:—'A peculiar feature of this contract is that 16,000*l.* are provided in sums to be dealt with by the architects for sundry works,' as to which he is further good enough to say that in his opinion 'the ratepayers of Birkenhead should have the advantage of public competition as well with regard to the 16,000*l.* as to the remainder of the estimate,' the first statement being simply untrue, and the latter misleading. The fact being that the addenda to the quantities to which Mr. Gabbutt alludes only contains 14,357*l.*, and that made up as follows:—8,157*l.* total of sub-tenders to which we shall again refer, 2,700*l.* set apart in the specification for the use of the committee for heating and ventilation, &c., and 3,500*l.*,—not 16,000*l.*, as stated by Mr. Gabbutt,—'to be dealt with by the architects for sundry works.' And even for these we have already had estimates, but deferred closing in anticipation of being able to make still better terms for our clients. As to the 8,157*l.*, this is the total of the lowest estimates received by us from specialists, as many as five estimating for one thing; and that no wrong should be done to the sole contractors by our act, we sent to each a list of the lowest tenders received, giving the sub-contractors' names, and plainly marking the document as follows:—'Amount of lowest estimates received by the architects for the several works required to be done in a special way, and by tradesmen approved by them. Note: These figures being net, the contractor must add for himself any profit he may require thereon, and include the same with sums herein in the general tender.' A course which allowed each to add the same profit he would have done had the estimates been got by himself, placed all on one equal footing, and, whilst securing for the building the best possible results, prevented the too common curse of open competition, viz., finding when too late that work requiring special means of supply, or the highest skill, is in the hands of men whose only recommendation is the lowness of the price quoted in their eagerness to secure the job. . . . .

We beg permission to refer to the question of 'duplicate tenders.' On this, as on all other points, we are quite sure that if fairly looked at our action is not even open to doubt. Had we actually occupied the position of 'architects to the municipality,' to which, according to the referee's report (August 30, 1882), and adopted by the Council, we should become entitled on the verification of our estimates, even then we should not have violated any professional law or rule by asking to have copies of the tenders sent to us at the same time they were sent to our clients. It must, however, be remembered that we are not yet officially appointed to the position we have now fully earned, and that our right thereto depended entirely upon the estimate in question; consequently, whilst carefully guarding your interests, it was only to be expected we should also protect our own by asking for copies of the tenders to be sent to us, so that if the amount was above the 42,000*l.* stipulated, we could at once point out how and where reductions could be legitimately made to bring the cost below this figure, instead of waiting, and for want of this ordinary precaution finding ourselves perchance voted out as not complying with the terms of the competition."

ADDLESTONE CHURCH.

THE parish church of St. Paul, Addlestone, Surrey, has been lately re-opened, after considerable works in restoration and improvement. Originally built at the period of the Gothic revival,—over forty years since,—upon lines of plan and construction not based upon the best Mediæval precedents, it has been found difficult to apply very thorough ecclesiastical treatment in the Pointed style. Much has, however, been done to bring the structure into better accord with the advanced spirit and taste of the present times. The old square boxed pews have been cleared out; the aisles have been re-arranged; a central passage in the nave, wanting in the original plan, has been provided; and new open benches of convenient form, with handsome traceried ends next aisles, have been substituted. The chancel has been newly seated with stalls having carved poppy-head terminals, and paved with encaustic tiles, the aisles and nave being paved with red and black Staffordshire tiles. The chancel ceiling has been newly boarded in panels with moulded ribs, and the canted plaster ceiling of the nave, —its most unsatisfactory feature originally,— has been relieved by flat decorative treatment, panels in pale grey and salmon tints. The organ has been removed from the western gallery, and, after considerable enlargement of its musical power by Bryson, been re-erected in a transeptal addition which has been built on the north side of the chancel, communicating therewith and with the north aisle by Pointed arches, pierced through the original walls. This transept is of Early Pointed style (the basis of the church), and sufficiently large to comprise a choir vestry. Private donors in the parish have expressed their interest by contributing additional stained-glass windows, a corona in the chancel, gilt alms-dish, baptismal ewer, &c., and the ladies have presented new furniture of handsome design for the Communion-table. The works have been executed, including repairs to the fabric, by Mr. Harris, of Woking; Messrs. Herrings, of Chertsey, have provided hot-water pipes for heating. The architect appointed by the vicar and churchwardens and committee to design and superintend the works was Mr. Samuel Knight, of Cornhill.

NEW CEMETERY, STOKE, SURREY.

THE new cemetery at Stoke-next-Guildford was formally opened on Saturday last week, when the Lord Bishop of Winchester consecrated a portion of the ground. The buildings were designed by Messrs. Peak, Lunn, & Peak, architects, Guildford, and the whole of the works have been carried out under their superintendence. The chapel is built of Bargate and Bath stone, the roof being covered with Broseley tiles, with the exception of the spirelet, which is of oak shingle, and the style is Gothic of the Geometrical Decorated period. Similar materials were used for the lodge, which includes a waiting-room; the style adopted for these being a quiet type of Domestic Gothic. The principal fittings throughout are of pitch-pine. The general contractor was Mr. R. Pink, of Milford; the ironwork, including the wrought entrance-gates, being entrusted to Messrs. Weyman & Mason, of Guildford; the oak fencing was erected by Mr. W. Hebburn, of Worplesdon; the planting was performed by Mr. W. Virgo; and the grave indicators are from the potteries of Messrs. Ambrose, Walker, & Co., of South Stockton. The cost of the site, buildings, road-making, and other works, has been a little over 4,000*l.*

The Fisheries Exhibition.—The number of visitors at the Fisheries Exhibition on Saturday was 15,547, making a total for last week of 73,424. The total number from the opening of the exhibition has been 364,545. When the exhibition was first opened it was stated that 10,000 visitors a day would be required to clear expenses and save the guarantors. Now, however, they may fairly look for a profit.

ETON COLLEGE.

ON the 19th ult. Mr. J. W. Clark, formerly Fellow of Trinity College, Cambridge, gave a lecture on "The Architectural History of the Buildings of Eton College," a detailed report of which appears in the *Eton College Chronicle*. The lecturer observed that when King Henry VI., at the outset of his reign, turned his attention to education, and determined that his "prymer notable werke" should be the foundation of the college at Eton, it was natural that he should select Winchester as a model. Notwithstanding Henry's ardent desire to imitate, and if possible to surpass, Wykeham, he began by founding a college at Eton (1440), and a college at Cambridge (1441), independent of each other. King's College, Cambridge, was not founded on its present site until 1446. In fact, the scheme seems to have suffered, from the very beginning, from want of careful consideration. It was repeatedly altered when it ought to have been completed. The advowson of the Parish Church of Eton was obtained August 29, 1440; and the pieces of ground composing the site adjacent to it were conveyed to the college in 1442. The building work was commenced in 1441, when the first stone of the chapel was laid at the high altar by the king in person. It is probable that the design for the new buildings was repeatedly changed during their progress, for the document in which the plan of the whole college is developed is dated March 12, 1448, when a large staff of workmen had been employed for seven years upon them. The library was to be in the centre of the east side, and the gate of entrance opposite to the hall on the north side. This quadrangle was to be approached through an outer court, which was to have "a faire yate" out of the road. This outer court would have occupied the site of Weston's yard. The whole was to be surrounded by a stone wall 13 ft. high; and the ground was to be "enhanced," that is artificially raised, to different levels in different parts, the exact height of which is minutely prescribed. The whole of this scheme is clearly taken from Winchester. The design for Cambridge, and the plan of New College, Oxford, closely resemble it. The existing plan of Eton, though bearing a general resemblance to it, differs from it in all its details, except the Hall. The accounts show that in 1443 a contract was made for ten chambers on the east side of the college, a Hall with cloisters and seven towers. These are probably the seven towers on the east and north sides of the cloister-quadrangle; and the buildings of which they form part are therefore among the first erected. In the same year, Bekyngton was consecrated Bishop of Bath and Wells in the new chapel, "which was not as yet half finished," after which ceremony he gave a banquet "on the ground-floor of the new buildings of the college, on the north side, where the chambers had not as yet been subdivided by partitions." On the strength of this description we may assign the commencement of the long chamber to 1443. In 1848, the year in which the will was signed, we find an estimate for the completion of the chapel and buildings. As the chapel is said to be 103 ft. long, it is clearly the chapel mentioned in the will. The estimate shows that carpenters were at work on the roof and stalls, and that it was expected to be finished by Michaelmas, 1449. Again, the "quadrant of the college," as it is termed, was so far advanced that only 40*l.* was required to finish it. The actual chapel, however, is of very different dimensions,—150 ft. long by 40 ft. broad. This is to be explained by a most extraordinary change of plan, evidence of which exists. The lecturer infers that the king had the nearly completed church pulled down, and the present church begun, of which only the choir was completed. The old materials were, in part at least, used up again, as is shown by the state of the east window, where the irregularities in the curve of the arch-mould may be explained by the theory that it was constructed out of blocks prepared for, and perhaps actually laid in, an arch of smaller span. The death of Henry VI. interrupted the works, and they were not resumed until 1468. The chapel was finished about 1482. At this time the cloister-quadrangle was still incomplete on the west side, and it was not finished until 1516—1520, when Provost Lupton built the Provost's Hall, the gate, and the rooms south of it. Upper School was built by Provost Allestree between 1665 and 1681, but, proving insecure, it was pulled down and rebuilt in 1689.

THE DOWSON ECONOMIC GAS

AT THE NEW COUNTY ASYLUM, GLOUCESTER.

THIS gas has been fitted up at the new County Lunatic Asylum in Gloucestershire, to do the whole of the cooking and bread-baking for the staff and inmates; for the heating of water for baths, laundry, &c.; for the heating of drying and fumigating closets; and for driving two 8-h.p. Otto gas engines for pumping, &c. The general contract has been carried out by the Dowson Economic Gas Co., of 3, Great Queen-street, Westminster, while the cooking and heating apparatus was made by Messrs. J. Slater & Co., of 251, High Holborn. The whole of the apparatus has lately been tested by the architects, Messrs. Giles & Gough, and the following are extracts from a report, dated 26th May last, they have made to the Building Committee of the Visiting Justices:—

"*Laundry Boiler.*—The boiler, cold supply-tank in upper part of laundry, and the flow and return pipes to the same, contain a total of 642 gallons. During the first day's trial some of the gas-burners were not used, and those in use had the cocks about one-third off. Dampers were open about 3 in.

Result.—Heated 642 gallons from 64° to 150° F. in four and a half hours, with the consumption of 4,710 cubic feet gas, requiring 61 lb. of coal, and costing, with wages, under 1s. 1d.

Hot water was then drawn off into laundry-troughs with the following

Result.—Drew off in 55 minutes 460 gallons at 110°, while the temperature of the boiler was fully maintained, with consumption of 1,400 cubic feet of gas, requiring 19 lb. of coal, and costing, with wages, under 4½d.

The dampers were then left open, and on the following morning the temperature of the boiler flow was 90°.

On the second day's trial the boiler was emptied and refilled with cold water. All the gas-burners were used, but the cocks were about one-third off. The dampers were open 2 in.

Result.—Heated 642 gallons from 63° to 150° in three hours, with consumption of 7,560 cubic feet of gas, requiring 97½ lb. of coal, and costing, with wages, 1s. 10½d.; and heated the same to 162° in three hours and a half, with the consumption of 8,800 cubic feet of gas, requiring 113 lb. of coal, and costing, with wages, under 2s. 1d.

Hot water was then drawn off into laundry troughs at the temperature of 150°, but the temperature of the water running into the troughs gradually fell to 142°, while the boiler flow did not fall below 161°. This apparent anomaly led to its being noticed that the flow and return branches to the laundry were connected respectively with the flow and return of the boiler, and it was supposed that this probably caused water at a comparatively low temperature to flow to the troughs from the boiler-return. The valve on the branch-return was then closed, and the drawing off into troughs was resumed.

Result (after stopping return from laundry).—Drew off in one hour 420 gallons at 150°, while the temperature of the boiler was fully maintained with the consumption of 2,500 cubic feet of gas, requiring 39½ lb. of coal, and costing, with wages, 7½d.

The dampers were nearly closed, and on the following morning the temperature of the boiler flow was 137°.

Generally.—The results show that with this gas system the coal consumption is about half that usually required for heating by coal fires, and it is believed that a still higher efficiency will be obtained when all the flues, &c., are dried and warmed with regular use, and when the chimney draughts can be better controlled."

It will be remembered that at the Smoke Abatement Exhibition the Dowson gas was awarded the highest honours, consisting of a gold medal and a special prize of fifty guineas given by Sir Wm. Siemens, F.R.S., for "The best method or arrangement for utilising fuel as a heating agent for domestic and industrial purposes combining the utmost economy with freedom from smoke and noxious vapours." The gas was very carefully tested by the Exhibition experts, and it is very satisfactory to find that the subsequent trials on a thoroughly practical scale at Gloucester have confirmed the results published in the Smoke Abatement Reports.

We understand that a contract has been let to light a portion of this asylum with incandescent electric lights, and that the motive power will consist of "Otto" engines worked with the Dowson gas.

THE GLASGOW INSTITUTE OF ARCHITECTS AND THE POLICE BILL.

MR. WILLIAM MACLEAN, writer, the secretary of the Institute, has sent to each Member of Parliament for Scotland, in reference to the Burgh Police and Health (Scotland) Bill, a letter in the following terms:—

No. 81, Bath-street, Glasgow, 11th June, 1883.

SIR,—As instructed by the Council of this Institute, I beg to enclose a copy of a communication addressed by the Institute to the Lord-Advocate in reference to the Burgh Police and Health (Scotland) Bill, now before Parliament, and most respectfully direct your attention to the very important point specially referred to therein.

The only object which the Institute has in view in actively interfering in this matter is to aid in securing for the country a proper Building Act, and for this they believe the complete separation of police and building regulations to be essential.

The threatened opposition to the present Bill, on the ground that it "interferes compulsorily with the existing system of police and municipal administration, and repeals several local Acts obtained by burghs, after due Parliamentary inquiry, for the better government and improvement thereof," seems itself to prove the expediency of the course which from the first the Institute has recommended; for while it is quite possible that there may be good reason for some diversity in the police regulations of burghs, there can be no justification for diverse building and sanitary regulations, and there is no necessary connexion between police administration and the administration of laws relating to buildings. The independence of burghs in other matters should not free them from the obligations of identical building laws.

The Council of the Institute do not think it necessary at the present stage to criticise the clauses of the present measure in detail; but I am desired to say that in their opinion they are exceedingly defective and unsatisfactory.

I have the honour to be, &c.

For the communication addressed by the Institute to the Lord-Advocate, referred to in the foregoing letter, we have not space.

PROPOSED ASSOCIATION OF INSPECTORS OF NUISANCES.

A MEETING, at 9, Conduit-street, W., was held on Saturday, the 9th inst., in a room lent for the occasion by the Sanitary Institute of Great Britain. The chair was taken by Mr. E. C. Robins, F.S.A., who was supported by Mr. G. J. Symons, F.R.S., and Mr. E. White Wallis. Mr. S. C. Legg then read the notice convening the meeting. The first resolution was proposed by Mr. A. Harland, A.R.I.B.A., Mem. San. Inst., viz., "That an association be formed, consisting of inspectors of nuisances holding appointments as such, and of those not appointed, yet holding the certificate of competency of the Sanitary Institute," and seconded by Mr. E. R. Boulter, of Bexley. An amendment was then proposed by Mr. G. S. Sherbourne, of Chelsea: "That an association be formed, consisting of inspectors of nuisances and sanitary inspectors holding or having held appointments as such." This was seconded by Mr. G. B. Jerram, A.M.I.C.E., of Walthamstow, and carried by a large majority.

The next resolution, viz.:—That this Association be called the Association of Inspectors of Nuisances; proposed by Mr. Thomas Stael, Limehouse, and seconded by Mr. Rains, St. George's-in-the-East. An amendment to that was proposed by Mr. Buckworth, St. Saviour's:—That this Association be called the "Association of Public Sanitary Inspectors," and seconded by Mr. Boulter, of Bexley. This having been carried, Mr. S. C. Legg nominated a list of gentlemen to form a provisional committee to arrange certain matters to be brought before the next meeting, on July 7th. Mr. G. J. Symons, F.R.S., was called upon to address the meeting. A vote of thanks was given to the chairman for presiding, who, to show his sympathy with the movement, kindly promised a donation of 5*l.*

Destruction of a Theatre by Fire.—An alarming fire broke out on Saturday afternoon in the Gaiety Theatre of Varieties, Peter-street, Manchester, belonging to Mr. E. Garcia, and in less than an hour the place was burned to the ground. The building was a large wooden one, erected originally as a circus. Some years ago a gallery was added, and it was turned into a music-hall. Had the fire broken out two hours later a fearful calamity must have ensued, as there is always a large audience at the Saturday evening performance. The cause of the disaster is not known.

THE LONDON SCHOOL BOARD AND ITS CONTRACTS.

MR. E. N. BUXTON presided at the usual weekly meeting of the Board, held last week. The adjourned debate on the following motion was resumed by Mr. Richards:—"That the present system of letting contracts be abolished, and that on the conclusion of existing agreements, before any fresh contracts are entered into, at least ten days' public notice shall be given, inviting tenders; and the Board shall require sufficient security for the due performance of such contracts." Mr. Richards thought that every builder in the metropolis should have an opportunity of competing for the contracts of the Board.

Sir Edmund Hay Currie said there were two kinds of open competition; one system was, as far as possible, carried on, but it would not be advantageous to allow "ordinary" open competition.

Mr. Lobb supported the motion. He said that a more important and businesslike motion was never brought before them. It struck at the root of the extravagant expenditure of the Board. Upwards of three millions of the ratepayers' money had been expended in the erection of school buildings. New members may have overlooked the fact that four years ago such was the extravagance of the London School Board in the school-building department that the Education Department stepped in and prohibited the Board from spending more than 10*l.* per place. At that time the same party who were now opposing the policy of open tenders were spending as much as 14*l.* and 15*l.* per place in the building of schools. Had the Education Department made it imperative that the London School Board should not spend more than 8*l.* per place, it could have been done, and about 1,000,000*l.* sterling saved. There were 1,400 builders in London, and out of these twenty-one firms have received up to May 31, 1883, 333 contracts from this Board. There need be no difficulty in entrusting the building of the schools to new firms. Why should a select few have all the patronage of the Board? They had an architect with thirty-two assistants. New builders had only to follow his specifications. He (Mr. Lobb) could understand the opposition to the change if they were threatened with a strike in the architect's office, but they need not be under any apprehension of any such catastrophe. He appealed to members to strike down at the root of one of the greatest abuses and most extravagant departments of the expenditure of the Board. Abolish the "close system," and adopt the resolution of open tenders, and make a selection from the 1,400 builders in London.

On a division, the motion was lost,—18 for and 27 against it.

SANITARY ASSURANCE ASSOCIATION.

THE third of a series of Wednesday evening lectures was given on the 6th inst. at 9, Conduit-street, W., by Captain Douglas Galton, Chairman of the Council of the Parkes Museum, on the subject of co-operation in sanitary matters. Captain Galton instanced the advantages which had resulted from co-operation in connexion with life and fire insurances, and argued in favour of the same principles being applied for the preservation of life from preventible diseases. The insurance company enables the provident person, by payment of a moderate annual premium, to secure for his family a provision against his death. The Sanitary Assurance Association enables the wise householder to have the sanitary condition of his dwelling assured for a similarly small annual premium. Through the agency of this and other movements he looked forward to the time when an unsanitary dwelling would be a thing of the past.

Sir Joseph Fayrer, who presided, together with Mr. H. Rutherfurd, Sir William Robinson, late Governor of Madras, Mr. R. B. Grantham, M. Inst. C.E., Mr. F. B. Jessett, F.R.C.S., Mr. Mark H. Judge, A.R.I.B.A., and others supported the views advocated by Captain Galton, to whom and the chairman votes of thanks were accorded.

Mr. Edwin Chadwick, C.B., will take the chair at the meeting in the Parkes Museum, on Thursday next, June 21st, at eight p.m., when Mr. Robert Rawlinson, C.B., will give an address on "The Hygiene of Armies in the Field."

SOCIETY FOR THE ENCOURAGEMENT OF FINE ARTS.

ON Saturday in last week the council of this Society invited Mr. J. Edmeston, who has, for several years, acted as chairman, to a complimentary dinner at the Café Royal. Sir J. W. Ellis, bart., vice-president, occupied the chair, and was supported by Messrs. Phil. R. Morris, A.R.A., Storey, A.R.A., C. B. Birch, A.R.A., Major Mercier, Dr. Phené, F.S.A., E. P. L. Brock, F.S.A.; Linton, president of the Institute of Painters in Water Colours; Orrocks, Cope, West, R. C. Belt, Lennox Browne, Dicksee, Allen, Sir C. F. Sharid, and Messrs. Gilbert, A. Cates, G. Truefitt, Cave Thomas (vice-chairman), and others.

The chairman proposed Mr. Edmeston's health in flattering terms, alluding especially to the services which had been rendered by the latter acting as Lord Mayor's Deputy during his recent year of office.

Mr. Edmeston acknowledged, in feeling terms, the unexpected compliment paid to him, expressing his belief that the demonstration was really an expression of approval and interest in their society, and of confidence in its future.

SURVEYORS' FEES.

IN the Lord Mayor's Court, before the Assistant Judge and a jury, the case of Ingledew *v.* Ray was disposed of this week.

Mr. Wildey Wright, barrister, who appeared for the plaintiff, stated that his client was a surveyor in Fenchurch-street, and the defendant was a builder at Lewisham. Last year the defendant was desirous of obtaining a mortgage on certain houses at New Cross, and he instructed the plaintiff to make a survey of them. That was done, and afterwards he gave to the plaintiff a commission-note in these terms:—"In consideration of your procuring or arranging for me an advance, I agree to pay 2½ per cent." The sum of 700*l.* was advanced on mortgage by the London and Suburban Building Society, which was subsequently increased to 800*l.*; and for time and trouble occupied in this and other matters of business for the defendant, a charge of 42*l.* 14s. was made. There had been paid 5*l.* 13s. on account, leaving still due a balance of 37*l.* 1s. 6d.

The plaintiff, Mr. Joseph Ingledew, was called, and stated that before the advance was made he placed the matter before several of the largest building societies in the metropolis, and to each of them he paid a guinea. For surveys his charge varied from one to three guineas.

His lordship.—There need be no question about the surveys, but is the plaintiff entitled to charge merely for going to see certain people?

Mr. Wright.—I submit that he is, according to the custom of the profession.

His lordship.—I am afraid I must bind you to the agreement. The commission is only to be paid on the completion of the mortgage.

In further examination the plaintiff stated that in regard to a second property belonging to the defendant he was engaged to procure a mortgage, and it could have been got except that his commission on the first transaction had not been paid. For looking out a suitable dwelling-house for the defendant he charged 3*l.* 3s., and altogether his bill was fair and reasonable.

The defence was that the plaintiff agreed to forfeit his commission unless an advance of 900*l.* was obtained, and also that certain surveys made were not authorised.

His lordship ruled that unless a surveyor received definite instructions he could not make any charge, and as to inquiry-fees respecting a mortgage, he might go to twenty places and make a charge in each instance, but it would not be legal.

In the result, the jury found for the plaintiff for 22*l.* 14s. 6d.

MASTERS AND MEN.

Arbroath Joiners.—At a meeting of the operative joiners employed in Arbroath, held on the 4th inst. to take into consideration the question of asking an increase in the rate of pay, after much discussion it was unanimously resolved to petition the employers for an immediate advance to the extent of ½d. per hour. The present rate is 6d. In the course of the discussion it was stated that the wages in Arbroath were below those of Montrose, Brechin, and Dundee. In these towns the rate ranges from 6½d. to 6¾d. per hour.

Glasgow Masons.—On the 6th inst., at a meeting of the Glasgow Trades Council, the masons' delegate explained that, rather than run the risk of a strike, the men had agreed to accept the increase proposed by the Master Masons' Society, to commence on the 6th of August instead of at the present time.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

2,733. J. Smith, Blackburn. Water-closets. June 1, 1883.

2,827. W. P. Thompson, Liverpool. Seal traps for wash-basins, water-closets, &c. (Com. by A. Edwards, Ashbury Park, U.S.A.) June 7, 1883.

2,828. G. Wedgwood, C. F. Wedgwood, L. Wedgwood, and G. A. Marsden, Etruria. Ornamenting tiles, bricks, &c. June 7, 1883.

2,838. F. G. Lynde, Melton Mowbray. Latches for doors, windows, &c. June 7, 1883.

2,845. J. McConnell, Ballymena. Metallic cement. June 7, 1883.

NOTICE TO PROCEED

has been given by the following applicants on the date named:—

June 5, 1883.

576. D. F. W. Quayle, Castletown. Window sashes. Feb. 2, 1883.

1,131. J. B. Adams and J. Telford, Liverpool. Balancing, securing, and fastening sliding window-sashes. March 2, 1883.

June 8, 1883.

619. G. W. von Nawrocki, Berlin. Hinges for doors, &c. (Com. by O. A. Ludewig, Stettin.) Feb. 5, 1883.

695. J. Hay and G. Robertson, Glasgow. Window sashes. Feb. 8, 1883.

714. S. Deards, Harlow. Apparatus for warming houses. Feb. 9, 1883.

984. F. Hammond, London. Chimney-pots for facilitating draught in chimneys, &c. Feb. 23, 1883.

1,488. A. M. Clark, London. Construction of stable drains and floors. (Com. by P. A. H. Basserie, Le Mans, France.) March 21, 1883.

ABRIDGMENTS OF SPECIFICATIONS,

Published during the Week ending June 9, 1883.

4,783. G. Hurdle, Southampton. Window-sashes, &c. Oct. 7, 1882. Price 6d.

A toothed wheel, containing in its interior a coiled spring, is mounted in a frame led into the sash, and it gears into a rack on the side of the sash panel.

4,811. A. J. Boult, London. Door-stops or checks. (Com. by G. R. Elliott, Boston, and J. M. Winslow and T. E. Clary, Norwood, U.S.A.) Oct. 10, 1882. Price 6d.

A spring and piston are combined with an outer spring, by which the door when opened is automatically closed without slamming. A rack and locking device are used to retain the door partially open.

4,839. A. J. Boult, London. Sash-balances. (Com. by C. E. Bogle, U.S.A.) Oct. 11, 1882. Price 2d.

The end of the sash-cord is secured above, and the cord passes through a pulley on the sash and over the stationary pulley above, whereby only half the weight is required to balance the sash. (*Pro. Pro.*)

4,842. F. Garon, Southend. Locks or door-fastenings. Oct. 11, 1882. Price 2d.

The knob is fixed to the spindle without using a screwed spindle, a screw-collar, a screwed rose, a tap-screw, or other parts liable to get out of order. (*Pro. Pro.*)

4,875. E. Guattari, London. Device for preventing the surreptitious opening of doors and windows. Oct. 13, 1882. Price 6d.

A spike has two opposite rows of teeth and a cross handle. This spike is inserted in the crevice of the door, &c., and turned round, when the teeth bite the door and the door-post, and prevent the opening of the door.

4,936. P. M. Justice, London. Water or stench-trap connexions. (Com. by C. Lightbody, Brooklyn, U.S.A.) Oct. 17, 1882. Price 2d.

The sewer-traps are provided with a water-tank connected with the sealing bend of the trap. A float-valve controls the supply of water from this tank. (*Pro. Pro.*)

4,951. J. M. Hart, London. Automatic registering apparatus for closet doors. Oct. 18, 1882. Price 6d.

The opening of the door draws back a travelling arm, and allows a trigger to act on a ratchet wheel, by which the indicating dials are worked.

4,958. H. Fleming, Halifax. Adjustable coverings or casings for locks and latches. Oct. 18, 1882. Price 6d.

The case of the lock has a lid, which may be hinged thereto or slide on the body of the case.

4,980. H. McRuer, Glasgow. Cooking ranges. Oct. 19, 1882. Price 4d.

A vertical flue is arranged above the fire, by which the fumes of cooking are carried off. An adjustable grating is fitted to the front of this flue, the opening of which is regulated by a sliding-plate.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

ARTISANS' DWELLINGS.

SIR,—Seeing the large number of these dwellings now being erected, and having been an inmate of them for some considerable time, may I draw the attention of your readers to some faults of construction?

The first few days of my occupation I could not account for a musty smell which pervaded the place. The cause I soon found was the closet, which was flushed by the waste from the sink: the consequence being, that when the closet-lid was down the stench came up the waste-pipe, this pipe not being trapped. I got over this by keeping the closet-window constantly open, and taking away the closet-lid. If this caused a family of two such annoyance, what must it be where some of the suites are inhabited by a dozen?

The windows are divided into three parts, the bottom one a fixture, the top sash only running part the way down, so you cannot get at the outside to clean them, and you cannot clean them from the inside unless you have an extraordinarily long arm.

The entrances ought to be from a central courtyard, and not from the street, because they afford capital dormitories, "and something worse," for tramps. Landings ought to be large, and the stairs flyers, not winders. I once saw a coffin being taken down one of these steep winding staircases, and it made the undertaker's men use language ill-suited to the occasion.

BENJAMIN BOLT.

GREEK CHURCH, LONDON WALL.

SIR,—Passing by this church the other day I was perfectly astonished beyond measure to see that the work of destruction of this fine architectural work had already begun. Some of the interior was gone, and these church-wreckers had already knocked a hole in its fine-proportioned dome. The building is, sir, as you know, quite new, only having been built a few years ago.

Now, I would ask, where is this spirit of desecration and destruction to end? Not far from this spot is the grand old church, the remains of a stately pile of buildings,—Austin Friars Priory Church. It, I say, behoves all lovers of this fine specimen of Gothic architecture (this and St. Bartholemew the Great being the only specimens of the Priory Church left), to keep a sharp look out, else some fine morning they may be astonished to see a host of church-spoilers and breakers, taking off the roof and preparing to pull down the walls.

It is perfectly sad and distressing to those whose minds soar above pecuniary gain and stock-jobbing, building offices and warehouses, and promoting companies, to see this hateful spirit abounding within the City of London. But what else can we expect, when we see a bishop of the diocese, and those set in high authority, promoting a Bill now in Parliament to this end and purpose? It has given a direct encouragement to the profane and thoughtless in their evil work to destroy every edifice of religion, whether belonging to the Greeks, Churchmen, or Dissenters. One great image is being set up, and that—Mammon! I say, Sir, it is most grievous and sad.

R. PAYNE.

TIMBER STAGES AND THE BUILDING ACT.

MR. COBBETT'S TIMBER STAGE, DRUMMOND STREET.

SIR,—As I saw no reporters present when this case was before the magistrates at the Marylebone Police-court on the 23rd ult., I am, perhaps, right in assuming that the report contained in the *Builder* of the 2nd inst. was communicated. I need only disclaim generally some of the evidence attributed to me; but as an accurate statement of the essential facts of these cases is always desirable, I venture to ask you kindly to insert the following.

The stage as erected covers a space of ground about 22 ft. by 28 ft., and is about 17 ft. 6 in. high. It consists of nine upright posts, in three rows of three each. Stout girders in both directions unite the posts at the top. The posts and girders are about 13 in. square, all mortised and tenoned, and farther secured by dog-irons, and the structure is stiffened by substantial braces and cross-braces. The posts are tenoned to stone bases mortised for them, and which rest on deep concrete foundations under the ground level. Over the girders are set on edge, but not yet nailed, joists, 11 in. by 3 in., about 12 in. apart.

Prior to commencing the work, application was

made to the Metropolitan Board to sanction a similar structure; but with the addition of boarding and metal work on the flat top, but the application was refused.

These are all the facts pertinent to the question, which I understand to be whether this is a "building" or not. Lawyers are accustomed to add "within the meaning of the Act." The Act, however, appears to me to have but one meaning, and that is the common-sense grammatical meaning. A "building," I take it, is anything built, or, as Mr. Justice Byles has said, "some structure or erection of considerable size, intended to be permanent, or at least to last for some time, whether let into the ground or not."

I accept this description, and I find in the Building Act the following "buildings" mentioned for the purpose of exempting them, viz., "bridges," "piers," "jetties," and "walls" of various kinds, as well as houses. There appears a general tendency to confound a "building" with a "house," and to say that a structure is not a building unless it has a roof; but I believe that both "building" and "house" are derived from the same Saxon, and while the former includes every "structure," the latter means a building with a roof. Thus we have "dwelling-house," "coach-house," "summer-house," "fowl-house," "out-house," "pent-house," and so forth.

The Building Act declares all "buildings" of whatever kind, except those specially exempted, to be subject to it. My own practice, equally with that of my predecessor (going back more than fifty years, and hitherto undisputed as far as I know) has been to treat the structures in question as "buildings." I am not able to understand upon what principle it has been decided that the one in question is not so; but I take it that it is a question of fact as to which there is no appeal; nor, if it were otherwise, do I consider it my duty to carry a case to the Superior Court. The decision, therefore, binds this particular case only; but it is, of course, embarrassing as regards future practice. I have a case now where a saw-mill proprietor has erected, in a most crowded locality, a wooden annexe to his saw-mill, with a boarded flat over it; and on my remonstrance has (guided by this decision) simply removed the boarding. His machinery projects from his mill into the annexe, and he will, no doubt, pile deals on the top so as to keep out the weather, and thus defy the provisions for safety from fire which the Act was intended to insure, and, as I still think, when rightly interpreted, does insure.

If this decision be correct, what an anomaly we have in an Act so jealous of fire as to disallow in a walled building a scrap of wood nearer than 4 in. to the face of the walls, while a structure of the most inflammable kind, heaped with goods equally inflammable and stacked for drying purposes in the most dangerous manner, may be erected close by, with chimneys all round delivering their smoke and heat,—if not flame,—right amongst the wood.

FREDERICK WALLEN,
District Surveyor for West St. Pancras.

FLUES.

SIR,—Observing some remarks in a recent number of the *Builder* respecting smoke-flues, advocating 9 in. by 9 in. as being usually quite sufficient, I beg to call attention to the practice of some of the foremost architects in Canada in this particular. They usually make their flues circular in section, and about 9 in. in diameter; thus increasing the average thickness of the outer casing, and at the same time accommodating the section of the flue to the natural form of a column of ascending vapour. As one who used this method in several large buildings in Toronto, I can vouch for its good results. The practice is to use wooden moulds about 2 ft. in length, round which the brickwork is carefully built. The moulds are slightly tapered, so that they can be easily withdrawn.

E. F. H.

CHIMNEYS.

SIR,—The size for chimneys given in yours lately cannot be accepted without considerable qualification. In the time of Mr. Cubitt, when Belgrave-square, &c., were built, the grate in vogue was Stephens's patent,—a very contracted one with sharp draught. Since then, open dog-grates with tiled sides have become the fashion, and now open grates with bobs and tiles. These require chimneys of the old dimensions, and so do nearly all kitchen fireplaces.

FREDERICK EDWARDS.

The Whalley Viaduct. — Improvements which will cost 20,000*l.* have been commenced at the great railway viaduct at Whalley, the alleged insecurity of which has been the theme of much comment. The alterations will consist of the re-arching of the top of the viaduct with bricks, and the asphalting of the surface. The work will take twelve months to complete.

CHURCH-BUILDING NEWS.

Barnstaple.—The parish church of SS. Peter and Paul, Barnstaple, was re-opened on the 24th ult., after restoration,—a work which was commenced by the late Sir Gilbert Scott in 1866. The work then done comprised the restoration of the south aisle and strengthening the timbered spire, which is covered with lead. A few years later the chancel and north and south chancel aisles were completed. The work just finished includes the nave, north aisle, and north transept. The old pews and galleries have been cleared out, and the large stone columns and wooden beams have been removed. The oak roofs, which were covered up with lath and plaster, have been cleared off, and the fine old oak timbers, with the beautiful carved bosses, exposed to view. The timbers, where necessary, have been spliced and strengthened, and in some cases new oak plates have been fixed. The transept roof is entirely new, with carved bosses at the intersections, and stone corbels to support the plates. These roofs have been covered with new oak boards and felt, and covered with new slates. A new stone ridge and two stone crosses have been fixed on the gables of the north aisle and transept. The apparatus for warming the church, which has been supplied by Messrs. Haden & Son, of Trowbridge, is a combined system of warm air and hot water, and appears to be very efficient. An opening has been cut in the north chancel aisle to allow the organ to be brought out some 7 ft. for the purpose of bringing the sound more into the church. The instrument has been taken down and cleaned, and four new stops have been added; other improvements also having been effected, and a new oak case, of elaborate design, has been supplied by Mr. J. O. Scott. This work has been carried out by Mr. Vowles, of Bristol. A new choir vestry has been arranged behind the organ, and the seats have been re-arranged in this aisle. The bays of the new arcade are particularly graceful, the arches springing from ornamental stone corbels carved by Mr. Hems, of Exeter. The old Jacobean pulpit which had little about it to make it valuable, has given place to one in Bath stone. The chancel stalls and fittings generally are of oak, and were made some fourteen or fifteen years ago. They were carved by Mr. Harry Hems, who has, from Mr. Scott's designs, just made handsome sedilia, bishop's seat, and altar-rails, all in pollard oak. The floor has been laid with encaustic tiles, the table has been restored and surmounted by a rich marble slab. This work has been carried out by Mr. Youings, of Barnstaple. Two pendants have been supplied by Mr. Skidmore, of Coventry, for the Sanctuary. The brass rail is supplied by Messrs. Potter, of London. The whole of the nave has been fitted with new oak seats, similar to those of the south aisle. The old monumental slabs have been re-laid in the middle passage, as nearly as possible in their original places, with a tile border about 15 in. wide on each side. The wooden floors have been well ventilated from the outside, and the space under covered with a layer of concrete and smith's ashes. The whole of this work has been done under the direction of Mr. J. O. Scott, architect, of London, and superintended by Mr. H. Roome, his clerk of works, London; Mr. J. Davy, of Barnstaple, being the general contractor. Mr. Pickard, of the same town, has done the carving to the pulpit and Mayor's seat and the bosses to the transept roof.

Mucklestone.—The parish church of Mucklestone, an edifice of considerable antiquity, is undergoing complete restoration. The church was built in the thirteenth century, and about a hundred years ago was enlarged; but its accommodation is insufficient to meet the requirements of the present day. The plans of the thirteenth century having been discovered, the building is being restored after the original design, Lord Crewe, through whose exertions chiefly the scheme is being carried out, giving 1,000*l.* towards the cost of the work.

Knowle.—On the 4th inst., after several postponements, the consecration of the Church of the Holy Nativity, Knowle, took place, and with the service was combined the induction of the Hon. and Rev. Hanbury Tracy as vicar. It is now sixteen years since the building of which the present structure is the outcome was erected. The first church was a wooden one. In 1870 the foundation-stone of a permanent structure was laid, the designs being furnished by Messrs. Ponton & Gough. The plans provided for a church in the Byzantine style of architecture. The chancel and two bays of the nave were opened for service in 1871. The services were during this time carried on in the wooden structure, and this was not removed till sufficient of the permanent nave had been built round it to take its place. The main walls of the church are of red and white Bridgwater bricks; the walls are unplastered, and are on the interior cased to the height of about 4 ft. with encaustic tiles. The usual nave arcade is so arranged that the pillars are at a a short distance from the walls; narrow side-aisles are thus formed, so that when the complete design is carried out the whole area of the nave will be unobstructed. The apse is semi-circular, with a domed roof of 30 ft. in diameter, constructed of cement and concrete in accordance with the style. The nave walls have yet to be carried to the height of those connected with the chancel, and if the original plans are carried out a tower or spire will be erected. The total outlay on the building, which seats about 600 persons, has been 6,000*l.*, besides about 500*l.* for the organ.

DISSENTING CHURCH-BUILDING NEWS.

Clevedon (Somerset).—On the 6th inst. a new chapel for the Wesleyan Methodist denomination was opened at Clevedon. The buildings are Early English in design. The main walls are of Pennant stone, with Bath stone dressings and strings. The windows are of similar stone, and have traceried heads. The roofs are covered with slate, and a lofty ventilating-turret is placed in a central position on the ridge. The architect is Mr. Herbert J. Jones, of Wellington-chambers, Bridge-street, Bristol, under whose direction and supervision the works have been carried out. The chapel will seat 500 persons. The whole of the works have been executed by Mr. W. A. Green, builder, of Clevedon, the amount of the contract being about 2,700*l.* The committee intend erecting a manse on a portion of the adjoining site, for which designs have been prepared by the architect. The total cost, in order to carry out the entire scheme, will be over 4,000*l.*

Helston.—It has been resolved to erect a new Wesleyan chapel here, at a cost of 2,500*l.*

Streatham.—The new Wesleyan Chapel here has been opened for service. It occupies a commanding site, facing the main road to Croydon and at the corner of Stanhope-road, close to Streatham railway station. It is built of coarse Kentish rag stone with Bath stone dressings, in the Early English style. At the angle of the building it is intended to erect a tower and spire 160 ft. high, the foundations of which are already in. The chapel is entered from the front by a wide flight of stone steps, divided by a landing into two divisions. These deliver on to a wide lobby, giving access by folding doors to an inner vestibule, and then to the chapel proper. The seats are divided by a wide central aisle 5 ft. wide, and two side aisles. The size of the chapel is 80 ft. by 52 ft., and there is also a chancel of aspidal form, 33 ft. deep and 23 ft. wide; on either side there will be an organ-chamber and vestries, but these are omitted for the present, as are also side galleries, but as sittings are provided on the ground floor for over 700, it is hoped that they may not be added at all. There are small transepts at the chancel end, the seats of which face the centre aisle; all are of the best deal, stained and varnished. The chancel has choir stalls of suitable design each side. The floor is of Minton's tiles, and it is raised two steps above the floor of the chapel, and the communion space one step above these again. The architect is Mr. Charles Bell, of New Bread-street, City. The builders are Messrs. J. & C. Bowyer, of Upper Norwood, and the total cost of the works when completed will be upwards of 8,000*l.*

Sig. Alexander Castellani, the well-known antiquary, died on the 8th inst., at Portici, near Naples, aged fifty-nine. He took an active part in the revolutionary movement in Rome in 1848. Deeply implicated in the conspiracy of 1852, he was imprisoned in the Castle of St. Angelo, but, successfully feigning madness, was liberated, and sent out of the Pontifical States. From that time he devoted himself to antiquarian pursuits, and chiefly to making collections, in which he dealt largely.

NOVELTY IN THE TYRES OF CARRIAGE-WHEELS.

A NEW description of wheel-tyre has been patented by Messrs. Merryweather & Sons, fire-engine makers, London. The object of this tyre is to prevent the skidding of carriage-wheels when travelling over roadways where tramways exist. The tyre is notched on both edges, and as this overhangs the rim of the wheel it effectually crosses and re-crosses the tram-line without twisting or skidding.

An experiment with a fire-engine having the improved tyres was tried near the London Hospital, where the tramway has been in a bad state owing to some underground work, and the result proved most satisfactory. It is anticipated that carriages, hansoms, mail-carts, and other quick-running vehicles, will save at least half their annual cost in the repairs of wheels and axles by the use of the new tyres.

Books.

ILLUSTRATED HANDBOOKS OF PRACTICAL ART.

Art-work in Gold and Silver, and *Art-work in Porcelain*. By HENRY B. WHEATLEY, F.S.A., and PHILIP H. DELAMOTTE. London: Sampson Low & Co. 1883.

THE number of various "Handbooks" of art is so great at present that we almost stand in need of a classification of the Handbooks themselves. The series of which we have two new numbers now before us, bear the names of Mr. H. B. Wheatley and Mr. P. H. Delamotte on the title-page, the first-named gentleman being assistant-secretary to the Society of Arts, the latter professor of drawing and painting at King's College; but, as in the case of some other series of handbooks, we are left in some doubt in regard to the real authorship, as we observe that the "editor's preface" is signed with the initials of the two gentlemen whose names are on the title-page, so that it is not very clear whether they are occupying the position of editors or authors.

The two numbers of the series now before us deal with the subjects of "Art-work in Gold and Silver (Modern)," and "Art-work in Porcelain." By the phrase "modern," in application to the first-named subject, is intended the period from the Renaissance to the present day, commencing with some account of the life and work of Cellini. In this one is glad to find a little variation from the constant sing-song of praise of Cellini, and a recognition of the fact that his taste was no more unimpeachable than his character, and that, in fact, the two had a certain bearing on each other. A highly-elaborate design for a jug, given on page 66,* gives, it is observed, "a good idea of one class of Cellini's work. It is over-ornamented, and such as might have been expected from the character of the man. He was a blusterer with but little admiration for any work but his own. He had no compunction in melting down the fine productions of his predecessors; still, he was a great artist, and his influence was immense." Had he been a man of less power, it might, perhaps, have been said that his beauties were his own, and the faults those of his day; but he was really too strong and influential a man to be regarded in that way, and probably had some considerable influence on the taste of the day, or at least went his own way without being entirely dependent on it. The fault in many of his sumptuous designs is that which is exhibited in the illustration referred to; they show a want of clean lines and of logical connexion of the various parts of the design; they are rich, but what may be called lumpy in effect, and the human figure is tortured into the designs, in the way of handles and stems, in a manner quite at variance with any true feeling for the dignity and importance of the figure when used as an adjunct to, or a heightener of, decorative design. The figure, in work of this kind, should be introduced to add a higher expression to the design; it should be framed amid the inferior portions of his work, as the most precious portion of the design, the central interest of it. But Cellini, like too many modern designers and silversmiths, who are more able to reproduce his want of taste than his power and brilliancy of treatment, introduces the figure often as if merely to show into what contortions he can twist it to serve as a handle or for some other practical purpose, and how cleverly he can model in these unmeaning and unnatural positions. And when the figure is not maltreated in this way, the outlines of the design of Cellini are too often ragged and bulbous, for no ostensible reason except the desire to produce what he seems to have regarded as a rich and sumptuous effect, but which is obtained at the expense of pure form and of truthfulness of design. And unfortunately the historical influence of Cellini and his followers has impressed this kind of idea of taste upon the modern silversmith's mind to far too great an extent. We have often had occasion to observe this in looking at such collections as the designs made for the prizes given by the Goldsmiths' Company. It is useful to compare this class of design with the specimens of German silversmiths' work given in the Handbook. As a general rule, German work of this class has not had at all the repute which its qualities deserve; though less sumptuous than Italian work, it generally shows cleaner line and greater purity of form, and a more consistent idea running through the whole. The English work of the earlier Renaissance period has on the whole less character than either the Italian or German. It escapes mostly the faults of exuberance of the Italian renaissance school, but rather apparently by reason of a more tame system of modelling than through any definitely-accepted principle; and it seldom attains to the combined elegance and solidity of character which distinguish the best German work of that period.

The English work of the seventeenth century, however, loses some of the faults of that of the previous period, and is in many examples remarkable for really fine design of a severer type than that of the preceding period. The "Poison-cup," belonging to Clare College, which is engraved on page 84, is a good example of this, though a little weak in the design of the handle, which, moreover, can hardly be comfortable for the hand, — one of the first desiderata of a handle, too often neglected. Another example is the rosewater dish and ewer belonging to St. John's College, Cambridge (p. 88), dating from the latter half of the seventeenth century. Here we have a great reaction from the florid style of the sixteenth-century school; in this school of design the form is first considered, and the ornament subordinated to it, and kept within its lines,— indeed, in the case of the dish, severity of line is carried a little too far, and some breaking of the lines into curves would have relieved the stiffness of the form. On the other hand, the form of the ewer is most elegant and well considered, and the object would rank as artistic for its form alone, independently of added ornament; and if we cannot quite say that this ought always to be the case, it is at all events a very great addition to the artistic value of the object. A still finer example of rich ornament confined within the boundaries of a symmetrical form is the Flemish salver, engraved (p. 90) from an example in the South Kensington Museum. One or two of the Dutch examples given are also very admirable in balance of style.

We are glad to observe also that the vulgar and pretentious style of the eighteenth century in France is critically condemned in the succeeding chapter. The extra interest aroused lately in this school of work by the Jones Collection at South Kensington has tended to stimulate a taste, too prevalent already, for this gorgeous, but, nevertheless, vulgar style of design, which has, unfortunately, left its trace only too much upon French silversmiths' work of the present day, much of which is very florid and exuberant in style. On the other hand, there is one great living designer and worker in precious metal,— Zuloaga, of Madrid,—whose art may compare with anything in silversmith's work that has ever been done. It is Moresque, but with a manner of his own, and a combination of chasing and damascening peculiar to himself, and exceedingly rich and beautiful in effect. One example of his work is engraved in the Handbook, but not on a sufficiently large scale to do justice to the detail. A good deal of Zuloaga's work was in some of the International Exhibitions at Kensington a few years ago; we called attention to its superior character at the time. The Handbook contains a chapter on gold and enamel work also, with some interesting illustrations.

The companion volume on porcelain art-manufacture has the same kind of merit as that on gold and silver work; it includes good critical remarks, a sufficient account of the subject, and a number of very well selected representative illustrations, not executed in colour (of which the price at which the volumes are issued would not allow), except the frontis-piece, which as a piece of colour is not in the highest taste: it is a modern Sèvres vase, of the blue and gold order of treatment so common in Sèvres work, and which we always regard as a common-place combination, showy rather than artistic. Taste in colour may perhaps be allowed to vary more with climate and social habits than taste in form; and it may be that the present tendency of taste in colour (among those English people who have any such taste at all) disposes one to unduly depreciate these brilliant and rather raw effects of blue or rose porcelain and gold; but it is certainly difficult to understand a period when the most cultivated and fastidious persons regarded this kind of combination as one of the most desirable and enjoyable decorative effects. The form and details of the modern specimen engraved here, are, however, more refined than is the case with many of the examples of the Louis Quinze period.

Both Handbooks are useful and well got up, and contain much information in small compass.

* The numbers of paging and illustrations appear to run, in both books, in continuation of a previous Handbook,— one commences at page 73, the other page 65; but there is no note to indicate from which previous numbers they are continued, which is rather an oversight.

Miscellanea.

Tewkesbury Abbey and the Abbey House.—The Earl of Carnarvon, as President of the Society of Antiquaries of London, has sent for publication the annexed reply to a memorial laid before the Council by the Tewkesbury Abbey Restoration Committee, urging the importance of securing for the Abbey Church land and buildings which formed part of the ancient monastery, but which have long been in private hands. "Resolution of the Council of the Society of Antiquaries of London, May 30, 1883, in reply to a memorial of the Tewkesbury Abbey Restoration Committee:—'The President and Council of the Society of Antiquaries of London rejoice to learn that an opportunity, which may not occur again for many years, now presents itself for securing to the Abbey Church of Tewkesbury the residence known as the "Abbey House," standing in its own grounds on land which embraces the site of old monastic buildings, the house itself being a portion of those buildings. This property is about to be sold under the will of the late proprietor, and the Council earnestly hope that funds may be forthcoming to purchase at least the portions immediately adjacent to the church, so as to place these valuable architectural and archæological features of the Abbey in a state of security, and remove what has often been felt to be a great ecclesiastical incongruity. The publication by the Society, in 1821, of a series of large drawings and plans of Tewkesbury in the *Vetusta Monumenta* is sufficient indication of the interest which the society has long taken in that venerable building, and which now induces them to make this appeal on behalf of those adjacent remains, which have unhappily been so long alienated from the edifice of which they at one time formed an integral part, and to which they may now be restored.'"—The memorial referred to is said to have emanated from the National Committee in London for the restoration of the Abbey, not the local committee, who are, it is stated, displeased at the form in which it has appeared.

Ground Leases.—In reply to Sir Henry Wolff, in the House of Commons, who asked the First Lord of the Treasury if Her Majesty's Government would consent to an inquiry, either by a Royal Commission or by a Committee of the House, into the present system of ground leases in towns, whether of houses or of land for building and occupation,—Mr. Gladstone said this question has not been discussed in the House, and her Majesty's Government are not aware of a state of facts which would enable them to think it right to move for an inquiry.

Death of a "Steeplejack."—A steeplejack named George Williamson, of Manchester, who fell from the St. Alkmond's Steeple, Shrewsbury, on the 8th inst., died at Salop Infirmary at half-past two on Saturday morning. He never recovered consciousness, and the injuries he received were of a most shocking character. Deceased was married, and leaves five children. At the inquest a verdict of "Accidental Death" was returned.

Unhealthy Dwellings.—In his last report, Dr. Liddle, the Medical Officer of Health of Whitechapel, draws attention to some newly-erected dwellings, partly in Commercial-street and partly in Shepherd-street, Spitalfields, the block having seventy-three rooms for thirty-nine separate families. There are 151 persons,—fifty-nine adults and ninety-two children,—living in fifty-three of the rooms, some of which, the doctor says, "are totally unfit for human habitation." There was no light in them even on a bright day, and "the sanitary arrangements" were "very unsatisfactory." There is no yard or open space to a building intended for more than 200 people, and Dr. Liddle thinks that this case exemplifies, in a striking manner, the necessity of such legislative enactment as shall prevent the erection of unhealthy dwellings. Some of the rooms have been closed by order of the authorities. Another building of the same character is described as "Plough-street-buildings," Whitechapel, having in one block eighty-three rooms, of which seventy-nine were occupied by 178 persons, ninety-one of whom were adults and eighty-seven children, "the lower order of foreigners, and very dirty."

Rebuilding of the Temple at Freemasons' Hall, Great Queen-street.—The paragraph in our last issue finished abruptly without completing the report of what took place in a very large and important meeting of the Grand Lodge. We are now informed that the report of the Board of General Purposes, advising the execution of certain work under the Grand Superintendent of Works, at a cost of 35,000*l.* over the insurance money, was not approved, and after a very long discussion, it was decided to appoint a joint building committee, four members representing the Board, and four representing Grand Lodge. The members duly proposed and seconded were Messrs. John Gibson, R. W. Stewart, F. Robinson, Sampson Pierce, G. Burt, E. Griggs, Henry Lovegrove, W. Smallpeice, and J. L. Thomas. The Earl of Carnarvon, Pro-Grand Master, declared the election to be in favour of Messrs. J. Gibson, R. W. Stewart, G. Burt, and J. L. Thomas, to represent Grand Lodge. The committee will obtain plans and estimates to submit to Grand Lodge.

Memorials of the Dead.—The second annual meeting of the National Society for Preserving the Memorials of the Dead was held on the 7th inst., at the rooms of the Society of Arts in the Adelphi, Dr. Trollope, the Bishop Suffragan of Nottingham, in the chair. The report, which was read by the secretary, stated that the number of members had steadily increased, and now reached nearly 500. It recorded the names of a variety of parishes in which the society had taken action, with more or less success, to stay the ruthless destruction of monuments. It also stated that the inscription on the monument of one person known to fame, Mrs. Bracegirdle, had been rescued from oblivion and re-cut, through the society's agency, in the cloisters of Westminster Abbey. Resolutions were proposed, seconded, and carried, affirming the usefulness of the society to the public.

A New Public Library for Rochdale.—On the 7th inst., at the monthly meeting of the Rochdale Town Council, presided over by Mr. Alderman Baron, the ex-Mayor, Mr. Councillor Fishwick, proposed that a public library should be erected on a site of ground at Willow Bank, nearly fronting the Town-hall, at a cost of 4,500*l.* Rooms on the third story of the Town-hall, previous to the fire, were used for a reading-room and library, but they were so inaccessible on account of their height, and were considered so dangerous on account of the weight of the books, that the Council for some time past have been discussing the advisability of erecting new premises. The result of the discussion was a decision to erect a spacious stone building of a single story, the cost of which is not to exceed 4,500*l.*

Bequests.—The will (dated Jan. 8, 1883) with two codicils (dated Feb. 9 and 26 following), of Mr. Charles Edward Barlow, late of The Lawn, Camden-park, Tunbridge-wells, who died on March 27 last, has been proved by Mrs. Julia Barlow, the widow, and Frederick Last, the executors, the personal estate amounting to over 28,000*l.* The testator makes bequests to the Builders' Benevolent Institution and the Architects' Benevolent Society. Any sums given by him in his lifetime to these charities are to be taken as on account of these bequests.

Pictures for South Kensington.—In the House of Commons, on the 7th inst., Mr. Dillwyn asked the Vice-President of the Committee of Council on Education whether purchases of pictures for the South Kensington Museum had been recently made; and, if so, whether it was intended to establish at that institution a second national collection of pictures in addition to that of the National Gallery; and, if such were the case, by whose recommendation and on whose judgment the purchases of pictures for South Kensington had been made.——Mr. Mundella said purchases of this nature had been made for South Kensington in accordance with a practice of many years' standing, but the sum so spent did not exceed last year 400*l.* The purchases were always made on the recommendation of the director of art.——Mr. Dillwyn said he should call attention to the matter when the vote for South Kensington was taken.

The Value of Property in Somerset and Wilts.—Mr. George Nicholls, of Bristol, has just conducted one of the most important sales of property which has taken place in Bristol for many years past, having sold twenty-one lots out of twenty-three offered, the sum realised being 17,265*l.*, exclusive of amounts for timber. One lot, a farm of 30 a. 3 r. 2 p. in extent, was sold for 3,200*l.*; and another farm, of 37 acres, at Churchill, was disposed of for 3,500*l.*; whilst a third farm, of 52 acres, was knocked down for 4,550*l.* At Devizes, Mr. Nicholls also sold this week a farm of 45 acres for 4,500*l.*; and Park Dale House, Devizes, with 8 acres of land attached, for 2,180*l.* He likewise disposed of 13 acres of pasture and arable land for 1,300*l.*

The Ashburnham Manuscripts.—We regret very much to hear that the negotiations between the Trustees of the British Museum and the Government on the subject of the Ashburnham manuscripts have not concluded satisfactorily. The Trustees recommended the purchase of the Stowe and Appendix sections for 90,000*l.* The Government declined, and offered 70,000*l.* Lord Ashburnham would not abate his price. In order to make a last effort the Trustees proposed to make up the 20,000*l.* by reductions in the Museum estimates for five years. The Government decline, and refuse to give more than 70,000*l.* The Treasury letter, refusing more than 70,000*l.*, was before the Trustees at their meeting on Saturday last.

Asbestos Goods.—Mr. John Bell has published an illustrated catalogue of Asbestos Goods which will be found valuable, and should be circulated. There are many ways in which asbestos may be usefully employed, and the supposed costliness of it serves to deter persons from using it. Mr. Bell's pamphlet will serve to dispel this erroneous impression.

TENDERS.

For new boys' and girls' schools at Norwood, for the Guardians of the Lambeth Union. Mr. Henry E. Coe, architect:

Priestly & Gurney	£55,621	0	0
Mowlem & Co.	54,390	0	0
J. W. Horbes	53,600	0	0
Earnell & Sons	53,300	0	0
W. Smith	53,249	0	0
J. Longley	53,130	0	0
W. Donoghue	52,462	0	0
Nightingale	52,280	0	0
Booth Bros.	51,400	0	0
W. Oldrey	50,967	0	0
G. Shaw	49,956	0	0
Bowyer	49,673	0	0
W. Shepherd	49,615	0	0
Kirk & Randall	48,867	0	0
C. Wall	47,376	0	0
Lucas & Sons	47,000	0	0

For enlargement of Oldfield-road Board School, Stoke Newington. Mr. E. R. Robson, architect:—

L. H. & R. Roberts	£2,895	0	0
E. Lawrence	2,774	0	0
W. T. Nibbett	2,748	0	0
T. Boyce	2,683	0	0
W. Shurmur	2,646	0	0
W. Oldrey	2,600	0	0
C. Goad	2,570	0	0
C. Wall	2,449	0	0

For building new warehouses and offices, on the site of Shaw & Overman's Almshouses, near St. Saviour's Church, Southwark, for the Managers of the Humphery Estates. Mr. George A. Dunnage, architect, 5, John-street, Adelphi. Quantities by Messrs. Linsdell & Giffard, Gresham-buildings, Basinghall-street:—

Greenwood	£4,009	0	0
Larke & Son	3,590	0	0
S. Chafen	3,530	0	0
T. H. Adamson & Sons	3,457	0	0
W. Bangs & Co.	3,385	0	0
Higgs & Hill (accepted)	3,284	0	0

For the erection of four houses and shops in Brixton-road, for Mr. Earle Bird. Messrs. Fowler & Hill, architects:—

Pack Bros. (accepted)	£5,300	0	0

For road and sewer works, on the Sands-end Estate Fulham. Mr. Charles Belton, surveyor:—

Wainwright & Co.	£3,850	0	0
E. J. Pound	3,774	0	0
Kellett & Bentley	3,415	0	0
W. Adamson	3,379	0	0
E. & W. Iles	3,075	0	0
W. Nicholls	2,975	0	0
C. Killingback	2,847	0	0
Nowell & Robson	2,770	0	0
James Smith	2,769	0	0
John Bell	2,506	0	0
H. S. Pollard	2,082	0	0
S. & J. Saunders (accepted)	2,050	0	0
William Owen	1,979	9	6

For dwelling-house and stores at East Croydon Station, for Messrs. Fremlin Bros., Maidstone. Mr. M. L. Caley, architect, Tunbridge Wells:—

W. & H. Castle	£4,448	0	0
Clements & Wallis	3,900	0	0
Simonds	3,853	0	0
Maides & Harper	3,530	0	0
H. Stiff	3,518	0	0
R. Avard	3,516	0	0
Smith & Bulled	3,494	0	0
A. Bullock	3,473	0	0
E. Vaughan	3,418	0	0
R. Ward	3,414	0	0
J. Smith & Sons	3,174	0	0
W. Holt	3,170	0	0
J. Arney	3,147	0	0
Le Gassick & Co.	3,100	0	0
S. Page	2,960	0	0

For new roads and surface-water drains, &c., on the Red Oaks Estate, Theydon Bois, Essex, for Mr. George Warman:—

Wilson, Walthamstow	£477	0	0
Peill & Sons, Bromley	465	0	0
Pizzey, Hornsey	462	0	0
Bloomfield, Tottenham	461	0	0
Keeble, Regent's Park	456	0	0
Harris, Camberwell	453	0	0
Jackson, Leyton (accepted)	439	0	0

For Teddington Local Board surface water drainage:—

H. Smith	£2,500	0	0
Jas. Taylor	2,418	13	5
W. Wood	2,330	0	0
J. Piller	1,990	0	0
J. Bell	1,918	0	0
J. Young & Co.	1,913	13	11
S. J. Saunders & Co.	1,875	15	9
Cowdery & Co.	1,781	5	7
Trimmer & Co.	1,763	0	0
Carter	1,741	18	1
Beadle Bros.	1,624	0	0
Harris (accepted)	1,570	0	0

For rebuilding premises, 114 and 115, Holborn. Mr. F. Chambers, architect:—

Wagstaff	£4,541	0	0
W. Brass	4,365	0	0
W. Shurmur	4,320	0	0
Colls & Co.	4,296	0	0
Ashby & Horner	4,257	0	0
Greenwood	4,213	0	0
Holland & Hannen	4,176	0	0
J. Grover	4,173	0	0
Conder	4,173	0	0

For alterations and additions to the Britannia public-house, Bow Common-lane. Mr. C. A. Legg, architect:—

C. Marr	£997	0	0
W. Shurmur	981	0	0
J. Anley	940	0	0
Parrish & Hawker	875	0	0
J. Walker	829	0	0

For alterations and additions to 17 and 18, Water-gate, Grantham, Lincolnshire. Mr. W. E. Brown, 6, Poultry, architect. Quantities by the architect:—

G. Hewitt, Leicester	£2,350	0	0
Rudd & Sons, Grantham	2,287	0	0
Wartnaby & Sons	2,150	0	0
R. Hookley	2,116	0	0

For new general offices, for the Consett Iron Company, Limited, Durham. Mr. W. Lister Newcombe, Newcastle-upon-Tyne, architect:—

Humphrey Atkinson (accepted)	£6,339	5	0

For the erection of a manse, Bellingham, Northumberland. Mr. Wm. Lister Newcombe, Newcastle-upon-Tyne, architect:—

Robson & Tremble (accepted).

For additions and alterations to the Northern Counties Institution for the Deaf and Dumb, Newcastle-upon-Tyne. Mr. Wm. Lister Newcombe, architect:—

L. Gaby (accepted).

For additions and alterations to St. George's Church Hyde. Mr. James Hunt, architect, 4, Warren-street Stockport. Quantities by the architect:—

Graham & Sons, Manchester	£1,700	0	0
Statham & Sons, Pendleton	1,652	0	0
Wharam, Hyde	1,558	12	0
Simpson, Hyde	1,540	0	0
Haughton, Godley	1,340	0	0
Robinson, Hyde (accepted)	1,245	0	0

For painting, paperhanging, &c., at Ford-croft, St. Mary Cray, Kent. Mr. W. R. Ansell, architect, Mansion House-chambers, 11, Queen Victoria-street:—

G. W. Stewart, Walworth (accepted)	£203	0	0

For necessary labour in sea defence works, for the Worthing Board of Works. Mr. Walter Horne, surveyor:—

James Page, Shoreham (accepted).

For the execution of certain works of house drainage (Contract No. 10), in the township of Urmston, for the Barton Sanitary Authority, Urmston. Mr. John Price, surveyor:—

Williams & Whittaker, Flixton (accepted).

For hospital at Hangleton, for the Hove Commissioners. Mr. E. B. Ellice Clark, engineer and surveyor. Quantities by Mr. B. H. Nunn:—

	Hospital.	Boundary Walls.
Botting, Brighton	£5,450 0 0	£1,425 0 0
Sawyer, Clapham	5,175 0 0	1,543 0 0
J. Parsons & Son, Hove	5,274 14 0	1,321 2 8
Chappell, Pimlico	5,048 0 0	1,290 0 0
Anscombe, Brighton	5,021 14 2	1,283 13 10
Bruton, Brighton	4,850 0 0	1,400 0 0
Peters,* Horsham	4,750 0 0	1,055 0 0
Longley, Crawley	4,665 0 0	1,296 0 0
J. Stenning, Brighton	4,650 0 0	920 0 0

* Accepted.

For new conservatory at 7, Castlenau, Barnes. Mr. G. Edwards, architect:—
Scharien & Williams (accepted).

For erecting new school in Anson-road, Tufnell Park, for Mr. A. Bayles. Mr. Geo. Truefitt, architect:—
Thomas Watson, Dulwich (accepted)... £509 0 0

For painting, whitewashing, repairs, &c., at the St. George's Union Infirmary, for the Guardians of the Poor of the St. George's Union. Messrs. H. Saxon Snell & Sons, architects:—

	Interior.	Exterior.
A. Pemberton	£730 0 0	£870 0 0!
F. Stevenson	555 0 0	445 0 0
Abrahams Bros.	not given	495 0 0
Chas. Wall	410 0 0	488 0 0
Sheerman & Son	368 12 0	487 0 0
C. F. Kearley	323 0 0	479 0 0
M. & M. Fleming*	310 0 0	310 0 0!

* Accepted.

For the erection of St. Marylebone Nursing Institute, Notting-hill. Messrs. H. Saxon Snell & Sons, architects:—

Wm. Brass	£9,789 0 0
E. Toms	9,593 0 0
M. Manley	9,581 0 0
Mowlem & Co.	9,434 0 0
W. Oldrey	9,271 0 0
Wall Bros. (accepted)	8,993 0 0

For pulling down and rebuilding the Princess of Wales public-house, Grove-street, Deptford (exclusive of cabinet, counter, pewtering, and gasfittings, &c.), for Mr. Frank Barnes. Mr. Henry Roberts, architect, 113, Lewisham-road:—

W. Shurmur	£2,286 0 0
Mark Redman	2,197 0 0
H. L. Holloway	2,147 0 0
Hubble & Trott, Deptford (accepted)	1,785 0 0

For alterations and additions to Devonshire Villa at Brondesbury. Mr. Walter Graves, architect:—

Williams & Son	£516 0 0
Ward & Lamble	397 0 0
J. O. Richardson (accepted)	300 0 0

For detached residence, Hornsey-lane. Mr. Walter Graves, architect:—

C. Goad	£3,250 0 0
Williams & Son	3,167 0 0
G. Green	2,950 0 0
Ward & Lamble (accepted)	2,753 0 0

For two offices, adjoining Willesden-green Station, for the Metropolitan Railway Company. Mr. Walter Graves, architect:—

Williams & Son	£353 0 0
Ward & Lamble	342 10 0

For stable, Cairns-roads, S.W., for Mr. G. J. Brown. Mr. G. T. Poole, 81, Chancery-lane, architect:—

Ayres	£375 0 0!
Richens & Mount	320 0 0
Sugden & Wood	295 0 0
Matthias	272 10 0
Higgatt & Brown	252 10 0
Hall	247 0 0
Pyte & Co.	240 0 0
Still	230 0 0
Warr	219 0 0
Riddell	209 15 0
Dean	200 0 0
Howard	194 4 0
Aldridge & Jenvey	185 13 6
Cubitt	184 10 0
Hancock, Battersea (accepted)	171 5 0!

For the erection of house with shop, Berkhamsted, Herts, for Mr. E. Platt. Messrs. Batterbury & Huxley, architects:—
J. Honour & Son, Tring (accepted).

For draining, kerbing, and making up Sophia, Drayton, Wallwood, and Bulwer roads, for the Leyton Local Board. Mr. Wm. Dawson, surveyor:—

Lovedale & Brooks, Woolwich	£2,114 1 1
Wilson, Walthamstow	1,973 13 2
Rutty, Bow	1,879 0 0
Wheeler & Hindle, London	1,867 15 1
J. W. & John Neave, Stratford	1,767 5 10
Woodham & Fry, Greenwich	1,765 0 0
Bell, Wood-green (withdrawn)	1,665 14 0

For two pairs of semi-detached cottages, on the Little Massingham Estate, for Mr. Wm. Walker (exclusive of bricks, lime, sand, and cartage of the same). Messrs. William Adams & Son, architects, King's Lynn:—

Nelson, Terrington	£642 0 0
Lofts & Son, Ely	612 0 0
Foreman & Jarvis, Lynn	590 0 0
P. H. Dawes, Lynn	562 0 0
Boddy, Harpley	560 0 0
Chilvers, Snettisham	550 0 0
Leach, Lynn	478 0 0
Rolling & Southgate,* Rudham	429 0 0

* Accepted.

For business premises, Brixton-rise, for Mr. John Bowron. Mr. G. T. Poole, 81, Chancery-lane, architect. Quantities supplied:—

Smart	£894 15 0
Maxwell Bros.	870 0 0
Whitlock	797 0 0
Hall, Camberwell (accepted)	767 0 0

For making up roads on the Sunny-gardens Estate, Hendon. Messrs. Barker & Roscoe, 191, Earl's Court-road, surveyor:—
John Bell (accepted).

For making up Bardolph-road, for the Islington Vestry. Mr. Chas. Hygens, surveyor:—
John Bell (accepted).

TO CORRESPONDENTS.

E. W. W.—D. W.—G.—C. G.—H. W.—R. P. P.—W. G.—S. M. J.—W. E. B.—W. L. N.—W. S.—J. R.—W. O.—J. D. W.—E. F. A.—H. B. M.—R. J. J.—P. & H.—A. D.—J. H.—J. P.—Le G. & Co.—Pack Bros.—C. B.—G. T.—J. & Co.—C. J.—S. C. L.—E. F.—W. D.—J. B.—W. A.—W. McL.—E. F. A.—W. G.—M.—W. de G. B.—R. P.—J. C. R. O.—W. & L.—E. C. B. T.—B. H. N.—J. E. D.—M. (under consideration).—T. W. W. (shall appear).

Correspondents should address the Editor, and *not* the Publisher except in cases of business.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors

NOTICE TO ADVERTISERS.

Persons advertising in the *Builder* may have
REPLIES ADDRESSED TO THE OFFICE
46, Catherine-street, Covent-garden, W.C.,
FREE OF CHARGE.
Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

CHARGES FOR ADVERTISEMENTS.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE, AND GENERAL ADVERTISEMENTS,
Six lines (about fifty words) or under ..... 4s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

Terms for Series of Trade Advertisements, also for Special Advertisements on front page, Competitions, Contracts, Sales by Auction, &c. may be obtained on application to the Publisher.

SITUATIONS WANTED.
FOUR Lines (about THIRTY words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all small sums should be remitted by Cash in Registered Letter or by Money Order, payable at the Post-office, Covent-garden, W.C. to
DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, PREPAID. Remittances payable to DOUGLAS FOURDRINIER, Publisher, 46, Catherine-street, W.C.

Best Bath Stone.
WESTWOOD GROUND,
Box Ground, Combe Down,
Corsham Down,
And Farleigh Down.
RANDELL, SAUNDERS, & CO., Limited,
Corsham, Wilts. [ADVT.

Bath Stone.
Facilities for selection and quality unequalled, having upwards of
350,000 Feet Cube
In Stock of all known descriptions.
PICTOR & SONS, Box, Wilts. [Advt.

Doulting Freestone and Ham Hill Stone of best quality, in blocks, or prepared ready for fixing. An inspection of the Doulting Quarries is respectfully solicited; and Architects and others are CAUTIONED against inferior stone. Prices, delivered to any part of the United Kingdom, given on application to CHARLES TRASK, Norton-sub-Hamdon, Ilminster, Somerset.—Agent, Mr. E. WILLIAMS, 73, Charlotte-street, Portland-place, W. [ADVT.

Doulting Freestone,
HAM HILL STONE,
BLUE LIAS LIME
(Ground or Lump),
Of best quality, supplied from their own Quarries and Kilns by STAPLE & HANN, Stoke, Ilminster. Agent, Mr. H. MITCHELL, 5, Augustus-road, Hammersmith, London, W. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.
Office:
No. 90, Cannon-street, E.C. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

Immense quantities of
DRY WAINSCOT,
DRY MAHOGANY,
DRY WALNUT,
in all thicknesses.
B. J. HUDSON & SONS,
Whitfield-st., W., and Great Peter-st., S.W.
London. [ADVT.

MICHELMORE & REAP,
Manufacturers of
CHARLES COLLINGE'S PATENT.
COLLINGE'S PATENT HINGES,
LEVER, SCREW, & BARREL BOLTS,
Self-Acting "FALL DOWN" GATE STOPS,
and IMPROVED GATE FITTINGS of every Description.
36A, BOROUGH ROAD
DISCOUNT TO BUILDERS. LONDON, S.E.

IRON CISTERNS.

F. BRABY & CO.

LONDON, LIVERPOOL, GLASGOW.

VERY PROMPT SUPPLY.
LARGE STOCK READY.
CYLINDERS FOR HOT-WATER CIRCULATION.

Particulars on application. *Chief Office: 360, EUSTON ROAD, LONDON.*